

# PURCHASING



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*plus 15 additional informative articles*



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# 8 years of clean systems for AlSCO's presses



**A**LSCO, INC., Akron, Ohio, has used *Texaco Regal Oil R&O* as its sole hydraulic fluid for the past eight years. During this period, the hydraulic systems in four heavy duty extrusion presses have remained completely free of rust, sludge and foam.

AlSCO's experience with *Texaco Regal Oil R&O* reflects the merit of this superior oil. Tests prove that *Texaco Regal Oil R&O* has *more than ten times the oxidation resistance* of ordinary turbine-quality oils. This means proven ability to prevent rust, sludge and foam. The result is extended life for pumps and

other vital parts, lower maintenance costs.

There is a complete line of *Texaco Regal Oils R&O* to meet the requirements of every type and size hydraulic mechanism, under every operating condition. A *Texaco Lubrication Engineer* will help you select the one exactly suited to your equipment. Just call the nearest of the more than 2,000 *Texaco Distributing Plants* in the 48 States, or write:

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

**EXTRUSION PRESSES** in the Gnadenhutten plant of AlSCO, Inc., Akron, Ohio. Pressures range from 1,100 to 2,000 tons. Operating temperatures are normally 140° F. — may go as high as 160° F. In addition, there are ten smaller pumps actuating the stretchers. All this equipment has used *Texaco Regal Oil R&O* for eight years with outstanding results.



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TUNE IN: TEXACO STAR THEATER starring JIMMY DURANTE on TV Sat. nights. METROPOLITAN OPERA radio broadcasts Sat. afternoons.

For More Information Circle No. 151 on Inquiry Card—Page 17



Here it is....!

# THE NEW "48-FRAME" MOTOR DESIGN

THAT GIVES YOU



## INDUSTRIAL QUALITY

Everything you asked for and more. Smaller, yes... and better, too. Here is traditional Century dependability, smooth-running and quietness under load... now skillfully engineered into the compact new "48-Frame" design.

These great new Century "Industrial Quality" motors are now available in sizes from 1/20 to 1/3 H.P.... developed specially for industrial users.

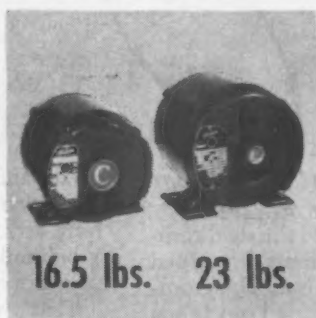
### ON NEW EQUIPMENT OR FOR REPLACEMENT...

when you see the red "C" on the new weight-saving, space-saving "48-Frame" motors, you're assured of Century's traditional industrial ruggedness. For information and for fast service, call or write your nearby Century District Sales Office or Authorized Distributor.

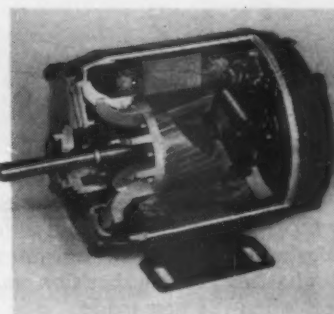


### We Invite Your Comparison of...

**engineering** — Weight savings up to one-third are made possible without "skimping" on the vital "active materials", simply by eliminating dead weight and using new materials. The result is smaller-diameter motors that are not merely "just as good" but actually superior to the famous Century "56-Frame."



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MOTORS  
1/20 to 400 H.P.



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RESEARCH KEEPS

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### *A typical example of B. F. Goodrich improvement in rubber*

THOSE sparks come from grinding wheels that cut through the hard, rough, scaly coating that's on stainless steel when it's first made.

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these and many other ways B. F. Goodrich belt engineers have successfully attacked the common causes of V belt failure, and in many cases, more than doubled belt service life.

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**B.F. Goodrich**  
**INDUSTRIAL PRODUCTS**  
**DIVISION**

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PURCHASING

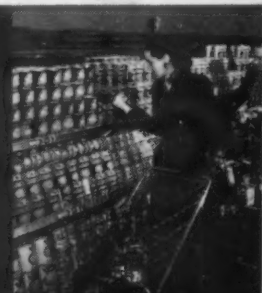


## WHO TOOK THE CAT OUT OF THE GROCERY BUSINESS?

You don't have to be as old as the hills to remember when practically everything you lugged home from the grocery store came out of a sack, a crate or a barrel. The revolution in food packaging has taken place within recent years. Can-makers and food processors have placed on our tables an infinite variety of basic foodstuffs and exotic delicacies. Steel has shared in this progress. At Inland, we've been working closely with can and container manufacturers for many years, helping to make steel an increasingly versatile and useful packaging material.

**INLAND STEEL COMPANY** 38 South Dearborn Street, Chicago 3, Illinois  
 Sales Offices: Chicago, Milwaukee, St. Paul, Davenport, St. Louis, Kansas City, Indianapolis, Detroit, New York. Steel products supplied to the steel container industry include tin plate, black plate, hot and cold rolled sheets and strip. Other products: plates, structurals, Ti-Co galvanized sheets, 4-Way safety plate, bars, reinforcing bars, rails and track accessories, coal chemicals.

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The National Magazine of Industrial Purchasing

VOL. 40, No. 2

FEBRUARY, 1956

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NBP

EPA

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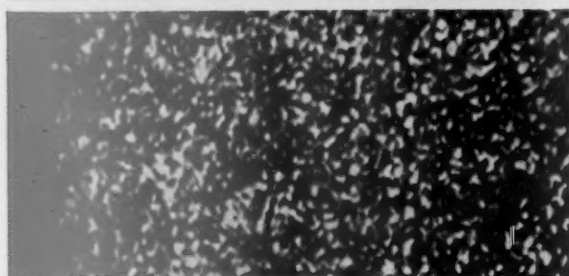
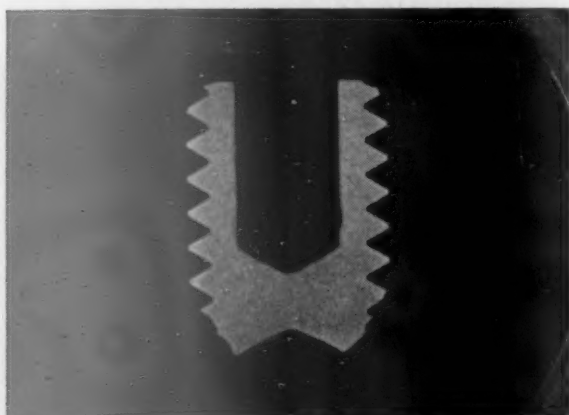
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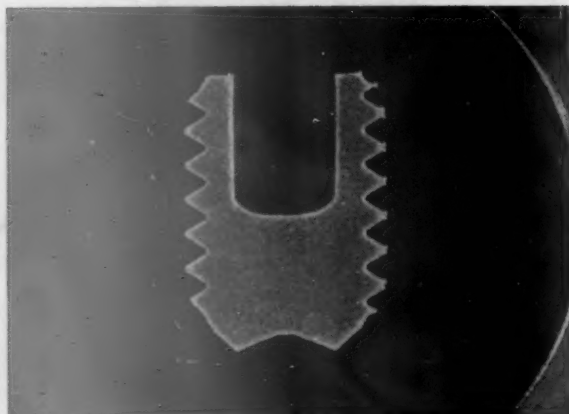
To get further information on anything mentioned in this issue, use Reader Service Card opposite page 17

# New heat-treatment methods help High-Torque Unbrako socket set screws withstand up to 40% Higher Torques

UNBRAKO SET SCREW



ORDINARY SET SCREW



## —you can set them and forget them

Research had proved that the tighter you seat a set screw the better it works. So we developed a set screw that could be tightened tighter than ever before without damaging the screw. One of the problems was developing new methods of heat treatment to eliminate decarburization. Decarb of course plays havoc with a screw. Put a wrench in the socket and you ream it. Run the screw into a tapped hole and you strip its threads. Try to seat it and its point shears off. These photographs are a study in contrasts. The UNBRAKO is clean, its grain uniform. There is no decarburization—the ordinary set screw is suffering from an overdose of it, socket walls, threads and point are full of the telltale white spots.

You can't buy a better screw than an UNBRAKO. And you can't get full *high-torque* performance without a "High-Titan" UNBRAKO Hex Key—the high-ductility, precision internal wrenching tool. See your industrial distributor. Or write STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

### RECOMMENDED SOCKET SET SCREW TIGHTENING TORQUES (Inch-Pounds)

SCREW SIZE	UNBRAKO	SET SCREW		MINIMUM DIFFERENTIAL %
		B	C	
#4	5	3.9	3.5	28
#5	9	7.8	7.4	15
#6	9	7.8	7.4	15
#8	20	14.7	14.5	36
#10	33	26.5	25	25
1/4	87	62	60	40
5/16	165	122	125	32
3/8	290	198	225	29
7/16	430	309	350	23
1/2	620	460	500	24
5/8	1225	1106	1060	11
3/4	2125	1540	1800	18
7/8	5000	3660	4600	9
1	7000	5025	6500	8



SOCKET SCREW DIVISION

STANDARD PRESSED STEEL CO.

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PURCHASING



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exclusive

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SAUNDERS**

**STRAIGHTWAY**

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VALVE**

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Diaphragm lifts high for  
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FEBRUARY, 1956

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Thomas Kearns, Traffic Manager for Garrett Corp.'s AiResearch Div., in high-altitude lab. He tells

## "How we cool off a hot pilot!"

"Above the speed of sound, air friction heats up the metal skin of the newest jets to several hundred degrees. *How do you keep the pilot cool?*

"AiResearch's answer: a refrigeration system including this miraculous 2-lb. turbine. Turning at 100,000 rpm's, it cools the air entering the cabin to 40° in 2/10 of a second!

"The extreme precision required in manufacturing such devices takes time. Yet, military contract schedules call for speed. Deliveries naturally have to be fast and sure — to plane

companies located all over the country.

"How can we do it? By Air Express!

"Air Express proves its worth to us dozens of times a day, both incoming and outgoing. We literally could not maintain our schedules without it.

"Yet on most of those shipments, *Air Express saves us money*. A 10-lb. shipment from Los Angeles to Kansas City, for instance, costs \$6.34. That's 17¢ less than the next lowest priced air service!"



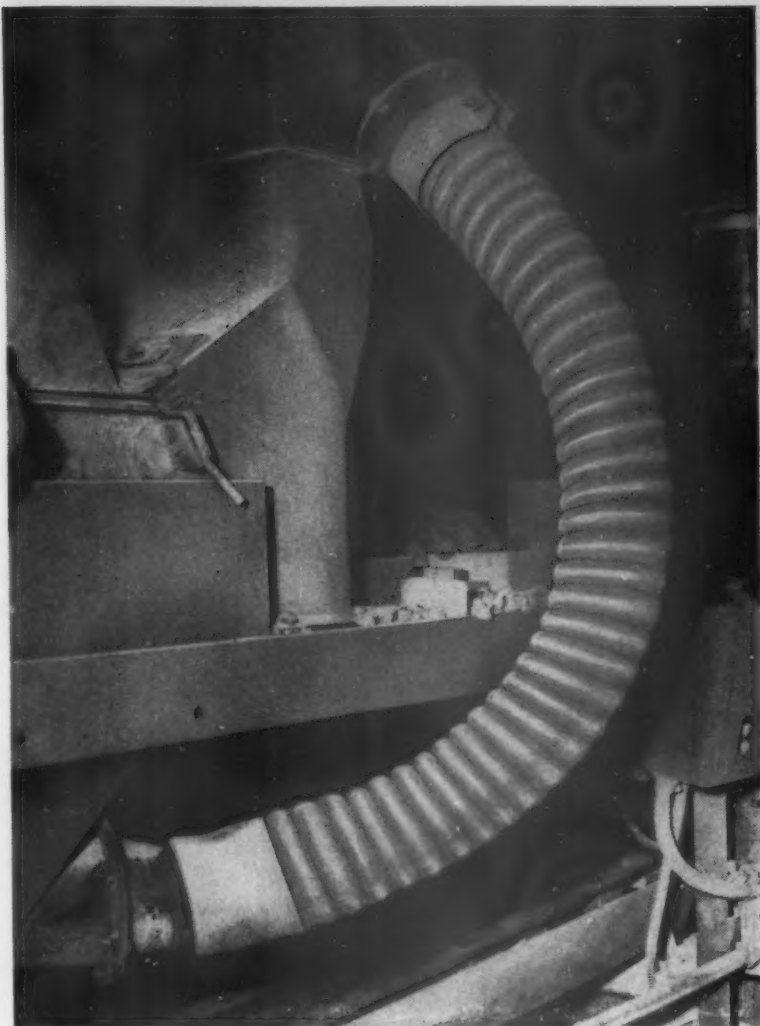
# Air Express



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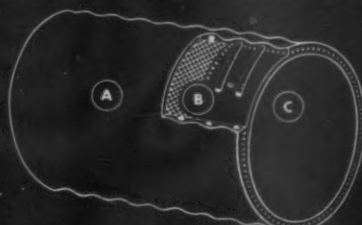


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HD Industrial Vacuum Hose for  
conducting abrasive dust or acid fumes



- A** Tough wear- and weather-resistant cover
- B** Reinforcement of sturdy wrapped fabric plus helix of flat steel wire prevents kinking and collapsing
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## Ten times the service *in brick dust collecting*

**A**FTER baking, insulating firebricks are cut to exact shape in special sizing machine. A vacuum system carries off the grit and dust.

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**Result:** The rubber pipe lasted *more than ten times as long*—cut maintenance costs accordingly.

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**HD INDUSTRIAL VACUUM HOSE by**

# GOOD YEAR

**THE GREATEST NAME IN RUBBER**

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**is important**



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Careful metallurgical control is imperative to assure the attainment of the desired properties in stainless steel tubing, particularly workability. Bishop assures this by inspecting chemically, metallurgically and visually each requirement against customer specification.

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**If you buy stainless steel fabricated tubular parts, or fabricate parts yourself from stainless tubing, investigate Bishop's cost-reducing "under one roof" drawing and fabricating facilities. You'll save more.**



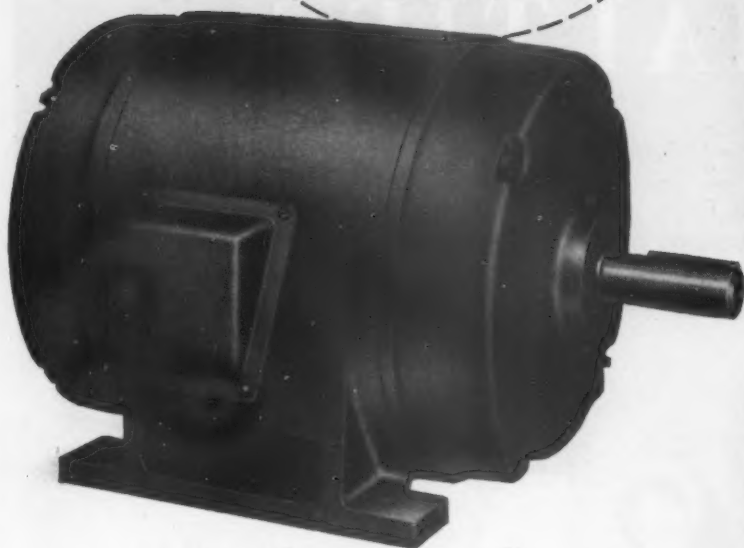
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Spinnerettes  
Medical Products  
Small Diameter Stainless Steel Tubing  
Fabricated Tubular Parts

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ELECTRIC MOTORS  
...the choice of leaders  
in industry

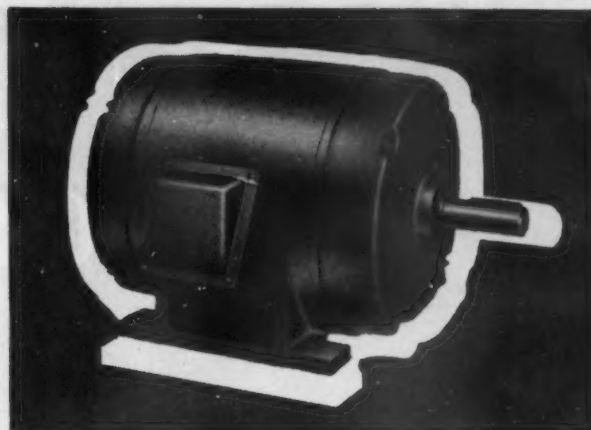


**You get better  
performance with these  
Wagner DP Motors**

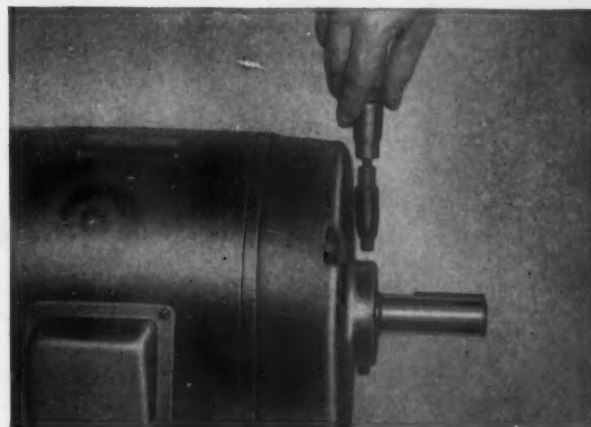
Wagner DP motors are doubly protected by (1) rugged, corrosion-resistant cast iron frames, smoothly rounded so that no moisture can collect on them. Motor feet are cast as an integral part of the frame for maximum strength and rigidity. (2) Enclosures on the DP motor are completely drip-proof—virtually splashproof. Air intakes are located at the bottom of the endplates and air outlets are located at the base of the frame—one on each side.

Although engineered to meet the re-rated NEMA specifications which call for more power in smaller frames, the same high quality and long life performance that have made Wagner Motors "the choice of leaders in industry" for many years has of course been retained.

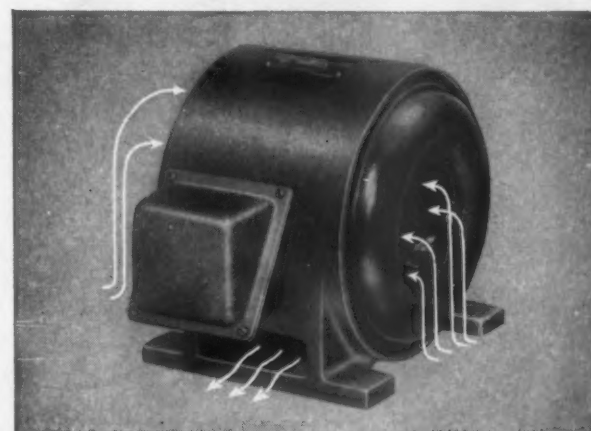
Full information and principal dimensions are given in Bulletin MU-202. Write for your copy today.



**MORE POWER IN SMALLER FRAMES** The Wagner DP Motor packs more power in a smaller frame and this smaller size means ease of handling and stocking...less space required for installation.



**CAN BE RE-GREASED FOR LONGER LIFE** This motor will operate for years without regreasing...bearings are completely enclosed...however, provisions have been made for adding lubricant and for the removal of old grease in cases where re-greasing is necessary.



**COOL RUNNING** Specially designed baffles direct cooling air from the blowers through the motor and provide protection for the stator windings. Blowers are an integral part of rotor...and move large volumes of air without noise or vibration.

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M56-4

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FEBRUARY, 1956

11

# UNITED SPECIALTIES



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- Pipe Plugs\*
- Thumb Screws\*
- Chicago Binding Screws\*
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- Closet Screws\*
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- Expansion Bolts\*
- Eye Bolts
- Formed and Threaded Wire
- Ball Headed Product

and other similar standard and special fasteners.

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*\*Carried in stock at "United" in Chicago, Cleveland, New York.*

**SCREWS • NUTS • WASHERS  
CLUTCH HEAD SCREWS  
STAMPINGS**

## United Screw and Bolt Corporation

Chicago 8

Cleveland 2

New York 7

For More Information Circle No. 164 on Inquiry Card—Page 17





# WASHINGTON REPORT

for purchasing agents

February 1, 1956

## DOWNBEATS IN THE BOOM

Housing and auto industries have held back forecasting a bigger business volume this year than last. There has been some speculation that the eight million auto record in 1955—and the 1.3 million housing starts—can be bettered in '56. These opinions, however, are in the minority. The more general approach has been to point to the heavy traffic and the large number of new cars on the highways, suggesting that the auto production of last year will not be equalled or exceeded. On housing, something less than the 1.3 million starts is expected.

\* \* \*

## MAY LEAD TO LOOSENING CREDIT

What happens if housing starts to go down? Factor which might slow housing activity is the tightened credit—and here the Government could reverse its position. Loosen credit again—cut the down payment and extend the mortgage period—making it easy to buy houses.

If the rate of housing starts shows a sharp dip, there is little question but that credit will be eased.

Another trend that will offset a drop in housing starts is an industry-wide drive to stimulate repair and modernization.

Home repair is a big industry of itself—and coupled with other construction which will be increasing in volume, the possibility of a reduction in new house building is not enough to flatten the boom.

\* \* \*

## AUTOS WILL BE THE KEY

Auto industry is a more sensitive spot. Autos use a big part of the steel, non-ferrous metals, pigments, textiles, glass and rubber on which the boom economy is riding.

In late winter, doubts and hesitation creep in on the question of how big the car market will be for the year ahead. There is a ready market for new model cars when they are first shown, then a lull in consumer buying until the spring and summer, when improved weather gives the buyer a new incentive.

During the first several months of last year, there were predictions that '55 would be an average car year—despite the enthusiasm the public exhibited for the new models.

The same sort of thing is happening now. The '56-models are not radically different from the '55s, and it is just too early to tell how big the demand will be once it gets under way in the spring.



## This plant is safer since they put these Crane valves on hazardous fluids

**THE CASE HISTORY**—How safely you handle hard-to-hold combustible fluids can depend on the valves you use. Read how a large Midwestern printing and binding plant, by changing to the right valves, encouraged employee care and safety while stopping hazardous leakage and waste.

The plant's supplies of kerosene, naphtha, benzol and similar fluids were stored in a fireproof room. But the danger was in the constant dripping and leakage at the tanks.

The original pump apparatus on the drums was discarded and ordinary valves were installed for drawing supplies. Still the hard-to-

hold fluids dripped and leaked—through the valve packing and stuffing box, and at the seats. Fluids were lost . . . the high maintenance costs continued . . . and the unsafe conditions remained.

Changing to Crane No. 130 brass valves on the drum outlets stopped all previous trouble.

To-date they've given more than a year of leak-free, maintenance-free service. These valves have special features for handling light oils, gases and volatile fluids.

Underwriters' Laboratories approved for LP-gases, Crane No. 130 valves have a composition disc soft enough for tight seating, yet stiff

and resilient to take hard wear. The disc, cemented in its holder, prevents around-the-disc leakage. The stuffing box with molded asbestos packing is extra deep for durable stem sealing.

No. 130 valves are typical of Crane quality and value, and the complete selection you have in the Crane line in valves and fittings for every flow control need.

You'll find that specifying and ordering Crane materials will lead to lower ultimate costs for your piping equipment.



# CRANE VALVES & FITTINGS

PIPE • KITCHENS • PLUMBING • HEATING

*Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas*

For More Information Circle No. 165 on Inquiry Card—Page 17

# WASHINGTON REPORT

continued

## PLANT EXPANSIONS SET PACE

What effect will these questions of housing and auto making volume have on the over-all picture in '56? If the consumer goes on buying and spending—if industry goes on with its plans to build plants and expand production—then the question of whether autos and houses will or will not equal last year's pace is of less importance.

Plans for industrial expansion carry with them momentum that will set the pace for employment and markets.

Important factor is that practically all U.S. industry is in an expanding phase. Plant capacity is being increased. Equipment is being modernized. There is no let-up in confidence.

\* \* \*

## POLITICS OBSCURE TRENDS

Political pressures that will be building up during the next nine months will have a conflicting influence on the business economy. Politics in an election year center around balancing the budget on the one hand—unbalancing it on the other through tax reduction and greater spending on military, roads and public works.

In an election year, the Administration defends its policies as having produced a high level of prosperity in the past, and calculated to insure prosperity for the future.

Opposing party takes the line that the Administration has been following the wrong course—that an immediate change is needed, and the consequence of not changing would be virtual disaster.

Overriding these two extreme positions are a number of saving factors—the first, that the public does not take the politician too seriously, and looks on the election more as a game than playing for keeps.

Industry position centers around the fact that most of its plans have been projected over a long term—capital expansion programs over several years into the future.

\* \* \*

## MUST DISCOUNT PROPAGANDA

Problem for the purchasing agent is to tread between the barrage of words and come up with enough solid facts to guide him on such fundamental decisions as inventory policy and contract commitments.

From all the outward signs, we are roaring into another year of boom. Mills are booked up with orders, demand for materials seems to far exceed even the present enlarged and enlarging supply. There are many indications that higher price tags will be placed on materials and components.

If all present intentions materialize—as indicated by plant expansion policy, public works planning, and consumer willingness to buy—there will be no question about firming up the demand for materials and maintaining a high level of manufacturing and business activity. If this happens, higher prices will not deter buying.

\* \* \*

## ADMINISTRATION STANDING BY

However, just as industry and the public will be watching for fatigue cracks to show up in the boom, so will the Government. And there are still many strings to the Government's bow which can and will be used to forestall any faltering tendencies—easing credit regulations, lowering taxes, greater spending, special programs to buoy the flagging farm economy, to mention just a few.



## BUSHINGS

widely used in farm machinery, automotive, electrical, home appliance and industrial applications. Rolled split bushings in Bimetal with bronze, babbitt, or sintered copper-lead alloy on steel. In plain bronze, steel or aluminum. Both types available with oil-pocket indentations, holes, grooves, cut-outs, and straight, lock, V or special seams. Wide range of lengths and diameters.



## WASHERS

for automatic transmissions and similar applications. In bronze and Bimetal, made to your special requirements. Note the variety of design features possible. Bimetal types include steel-backed, faced with bronze or copper-lead alloy. Our special sintering process permits facing one or both sides with copper-lead.



## SPACER TUBES

sleeves, bushings or ferrules. Thousands of uses from cars to phonographs. Rolled split type in steel, from 1/4" to 3" O.D. Economical replacement for tubing or machined parts. No cut-off, de-burring or scrap. Ready to assemble. Send for catalog of 645 standard sizes and prices.



Here are exceptional facilities and equipment for low-cost quantity production of your requirements. Complete engineering service.

RESEARCH • DESIGN • METALLURGY • PRECISION MANUFACTURING

**FEDERAL-MOGUL  
DIVISION**



SINCE 1899

FEDERAL-MOGUL-BOWER BEARINGS, INC., 11077 SHOEMAKER, DETROIT 13, MICH.

For More Information Circle No. 166 on Inquiry Card—Page 17

# SPECIAL SERVICE FOR READERS

You will want additional information about the equipment, materials, services or methods described or advertised in this issue of PURCHASING.

As a special service, our Reader Service Department will gladly and promptly arrange to have manufacturer's literature regarding any item in this issue sent directly to you.

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Additional information wanted



# catalog files

information for your

## GET BEST MOTOR FOR THE JOB

The advanced design built into a line of smaller, cooler-running motors is dealt with in a full-color bulletin, No. N-100-R. Comparisons help to select the best motor for a particular job.

**Howell Electric Motors Co.**

Circle No. 1 on Inquiry Card—Page 17

## NEED SCREW MACHINE PRODUCTS?

Facilities for making all types of automatic screw machine products are reviewed in an 8-page illustrated bulletin. Several hundred machines from  $\frac{1}{8}$ " to  $4\frac{1}{2}$ " in diameter capacity are described.

**Harvey Aluminum, ASM Div.**

Circle No. 2 on Inquiry Card—Page 17

## SEALS FOR PROCESS PUMPS

Unitary mechanical seals for rotary shafts of process pumps are covered in bulletin, AD-151 (12 pp). Sectional drawings and diagrams are provided. Seals are complete with sleeve and gland.

**The Garlock Packing Co.**

Circle No. 3 on Inquiry Card—Page 17

## COPPER BASE ALLOYS IN ROD FORM

A 28-page engineering manual contains detailed information on a range of alloys from standard free-cutting varieties to special alloys. Data is given on chemical and physical properties.

**Mueller Brass Co.**

Circle No. 4 on Inquiry Card—Page 17

## TOMORROW'S METAL

An illustrated booklet gives up-to-date data on the properties of titanium. It discusses fabricating methods. Properties of titanium are compared with those of other pure metals.

**E. I. Du Pont de Nemours & Co., Inc.**

Circle No. 5 on Inquiry Card—Page 17

## HOW TO CARE FOR FLOORS

Long range and day-to-day maintenance programs for all types of floors are described in a 24-page illustrated booklet. Suggestions are supplied for treating common floor failures.

**S. C. Johnson & Son, Inc., Maintenance Wax Dept.**

Circle No. 6 on Inquiry Card—Page 17

## EASY ON THE POCKET!

A folder describes various financing plans available to purchasers of internal grinders and precision boring machines. It tells about conditional sales as well as many lease plans.

**Bryant Chucking Grinder Co.**

Circle No. 7 on Inquiry Card—Page 17

## DO YOU NEED PLASTIC PARTS?

Facilities for producing all types of plastic parts in giant injection machines ranging up to 200 oz are described in a 12-page brochure. Case studies of unusual molding jobs are given.

**Nesco Plastics, Inc.**

Circle No. 8 on Inquiry Card—Page 17

## CUT HANDLING COSTS

A fully illustrated, 2-color catalog tells in 16 pages how "unitizing" packages with steel strapping drastically reduces materials handling costs in all segments of industry.

**Acme Steel Co.**

Circle No. 9 on Inquiry Card—Page 17

## SOLVING GAGING PROBLEMS

Two catalogs deal with precision measuring. No. 586 covers comparators for pneumatic gaging. No. 592 describes low-cost multi-dimensional gaging machines. The booklets are fully illustrated.

**Pratt & Whitney, Div., Niles-Bement-Pond Co.**

Circle No. 10 on Inquiry Card—Page 17

# catalog files

## FABRICATIONS FROM SPECIALIZED ALLOYS

Catalog No. G-10 covers, with over 200 illustrations, all types of heat and corrosion-resistant fabricated alloy products. Techniques in welding Inconel, etc., are shown.

**Rolock Inc.**

Circle No. 11 on Inquiry Card—Page 17

## FINISHING TO CLOSE TOLERANCES

Catalog No. 1843 covers a line of grinding and lapping machines which finish metal parts to close limits. It contains photographs and full specifications with description of each type.

**Norton Co.**

Circle No. 12 on Inquiry Card—Page 17

## BELT CONVEYOR CARRIERS, TRIPPERS

A standard line of belt conveyor carriers is described in bulletin No. 355. Also covered are a center roll carrier for light materials as well as special carriers and conveyor trippers.

**Stephens-Adamson Mfg. Co.**

Circle No. 13 on Inquiry Card—Page 17

## CLEANING WITH AIRBLAST

Fifty-six production cleaning problems, solved by use of specially designed airblast equipment, are detailed in a 34-page, illustrated brochure. The problems cover the whole metalworking field.

**Wheelabrator Corp.**

Circle No. 14 on Inquiry Card—Page 17

## GOOD PISTON PACKING FOR LOW COST-PUMPING

Bulletin No. 5503 (16 pp) gives information about precision-made composition cups for packing pistons of cylinders as well as reciprocating pumps. Types for different fluids are listed.

**Darling Valve & Mfg. Co.**

Circle No. 15 on Inquiry Card—Page 17

## SPECIALIZED SLINGS, FITTINGS

Various types of wire slings and fittings for specific applications are described in an 80-page catalog. There are capacity tables for each of 54 sling types, as well as for standard fittings.

**Wire Rope Corp. of America**

Circle No. 16 on Inquiry Card—Page 17

## ELECTRICAL, ELECTRONIC LAMINATIONS

Magnetic laminations to meet requirements of the electrical and electronic industries are described in a 16-page 2-color catalog, No. ML 201. Laminated cores and dies are also covered.

**Magnetics, Inc.**

Circle No. 17 on Inquiry Card—Page 17

## LEARN ABOUT CUT-OFF TECHNIQUES

A pocket-size, 108-page handbook concentrates on power saw cut-off techniques. It tells how to estimate cut-off costs, and deals with high-speed steel for saw bands.

**DoALL Co.**

Circle No. 18 on Inquiry Card—Page 17

## LOWER MANUFACTURING COSTS

How a non-destructive testing program can be instituted in production departments as a money saving tool is discussed in an 8-page illustrated booklet. It will uncover production wastage.

**Magnaflux Corp.**

Circle No. 19 on Inquiry Card—Page 17

## SWAGED HOSE ASSEMBLIES

Catalog S-1 shows a complete line of swaged hose, hose ends and adapters. Also featured is a swaged hose assembly numbering system. Assemblies of any size, type, pressure, etc., are quickly ordered.

**Weatherhead Co., Fort Wayne Div.**

Circle No. 20 on Inquiry Card—Page 17

## MORE LIGHT FOR LESS MONEY

An 8-page, two color booklet deals with typical applications of mercury vapor lamps in industrial plants and outdoor areas. 16 lamps, with double the light of ordinary lamps, are described.

**Sylvania Electric Products Inc.**

Circle No. 21 on Inquiry Card—Page 17

## CARBIDE TOOLS

A full line of carbide cutting tools forms the text of catalog 87C. It gives all data on drills, reamers, counterbores, cutters, end mills, miscellaneous tools and single point tools.

**Morse Twist Drill & Machine Co.**

Circle No. 22 on Inquiry Card—Page 17

**Circle Card Opposite Page 17  
to Obtain These Catalogs  
Additional Catalogs on Page 20**



# Lamson ALUMINUM FASTENERS

## TO THE FASTENER BUYER:

Lamson & Sessions has manufactured Aluminum fasteners for the aircraft industry for many years. Therefore their experience with aluminum goes back a long ways. Now, however, Lamson has added to its aluminum line standard fasteners from stock.

- **FAST DELIVERY**
- **COMPETITIVELY PRICED**
- **FULL RANGE OF TYPES & SIZES**

*Here's good news for users of aluminum fasteners.*

Lamson & Sessions has now added "standard" bolts, nuts, screws and cotters of aluminum alloy to its famous full line of fasteners.

Henceforth the products illustrated above will be readily available. They come in a wide range of standard sizes, including machine screws down to No. 6 diameter by  $\frac{1}{4}$ " in length.

This means that users of aluminum bolts and nuts can now buy at competitive prices with the added advantages of fast delivery and service.

From now on it will pay you to insist on Lamson & Sessions aluminum fasteners—made by one of the world's largest fastener manufacturers.



## THE LAMSON & SESSIONS CO.

1971 WEST 85th STREET • CLEVELAND 2, OHIO

Plants at: Cleveland and Kent, Ohio • Birmingham • Chicago

**LAMSON'S FASTENER EXPERIENCE IS  
NOW YOURS IN ALUMINUM**



## GRINDING FOR INCREASED PRODUCTION

A 32-page booklet contains 46 illustrated case histories wherein abrasive belt-grinding increased production. Studies cover wide range of materials, metals, glass, plastics, etc.

**Engleberg Huller Co., Inc.**

Circle No. 23 on Inquiry Card—Page 17

## CONTROLLING TEMPERATURE MORE CLOSELY

Full specifications on a line of thermocouples, pyrometers and accessories are contained in a 16-page, 2-color catalog. They show how their use controls temperature closer to save costs.

**Arklay S. Richards Co., Inc.**

Circle No. 24 on Inquiry Card—Page 17

## CONTROL TRANSFORMERS

Illustrated brochure, GED-2767, describes in 32 pages a complete line of autotransformers, machine tool transformers, and special application models. It contains ratings and dimensions.

**General Electric**

Circle No. 25 on Inquiry Card—Page 17

## DATA ON STAINLESS STEEL FASTENINGS

A semi-annual catalog just released dealing with stainless steel fastenings combines stock lists, price lists and discount sheets in one reference manual. Over 9,000 items are listed.

**Anti-Corrosive Metal Products Co., Inc.**

Circle No. 26 on Inquiry Card—Page 17

## WHERE POWDER METALLURGY IS USEFUL

How modern powder metallurgy can be a powerful force for mass production of equipment of many types is shown in a 22-page booklet. Facilities of the company for its production are reviewed.

**Keystone Carbon Co.**

Circle No. 27 on Inquiry Card—Page 17

## SELECT THE PROPER ABRASIVE DISC

Catalog AC-55 describes types and sizes of abrasives for flat surface grinding. A chart shows variable factors that influence selection of abrasive discs and cylinder wheels.

**Gardner Machine Co.**

Circle No. 28 on Inquiry Card—Page 17

## NICKEL SILVER AND PHOSPHOR BRONZE

Complete information on a line of nickel silver and phosphor bronze alloys supplied in sheet, strip and coils is contained in a 60-page general catalog.

**Waterbury Rolling Mills, Inc.**

Circle No. 29 on Inquiry Card—Page 17

## COUPLING THAT TIGHTENS WITH PRESSURE

A 20-page catalog features page-size, cut-away views of a quick-seal hose coupling that tightens as pressure increases. Its swivel action prevents hose kinking. Varying types are covered.

**Titeflex, Inc.**

Circle No. 30 on Inquiry Card—Page 17

## MACHINE TOOL MOTORS, DRIVES

Large sized photos provide essential data on over 15 motors and drives for the machine tool industry, in a brochure, No. 1750. There are 19 supporting illustrations on installations.

**The Louis Allis Co.**

Circle No. 31 on Inquiry Card—Page 17

## CUT MATERIALS HANDLING COSTS

An attractive 28-page, 8½ x 11 in. brochure, profusely illustrated, shows how steel wire mesh containers, pallets and bulkheads reduce costs and solve materials handling problems for plants.

**Pittsburgh Steel Products**

Circle No. 32 on Inquiry Card—Page 17

## SAFE WIRING

A 134-page, illustrated catalog lists various surface raceways and fittings to promote safe wiring. Ten basic wiring systems, interconnectible with each other or old wiring, are covered.

**The Wiremold Co.**

Circle No. 33 on Inquiry Card—Page 17

## WIRE FOR ELECTRONICS

Full descriptions, specifications and illustrations of 1373 items for the electronics industry are contained in catalog No. 55. Printed in 3 colors, it is divided into 4 easy-to-use parts.

**Alpha Wire Corp.**

Circle No. 34 on Inquiry Card—Page 17

## INSULATING AND OTHER MATERIALS

A Products Handbook (52-pages) describes eleven lines of products which help industry to control heat, cold, sound, motion and corrosion and protect against fire, weather, wear.

**Johns-Manville**

Circle No. 35 on Inquiry Card—Page 17

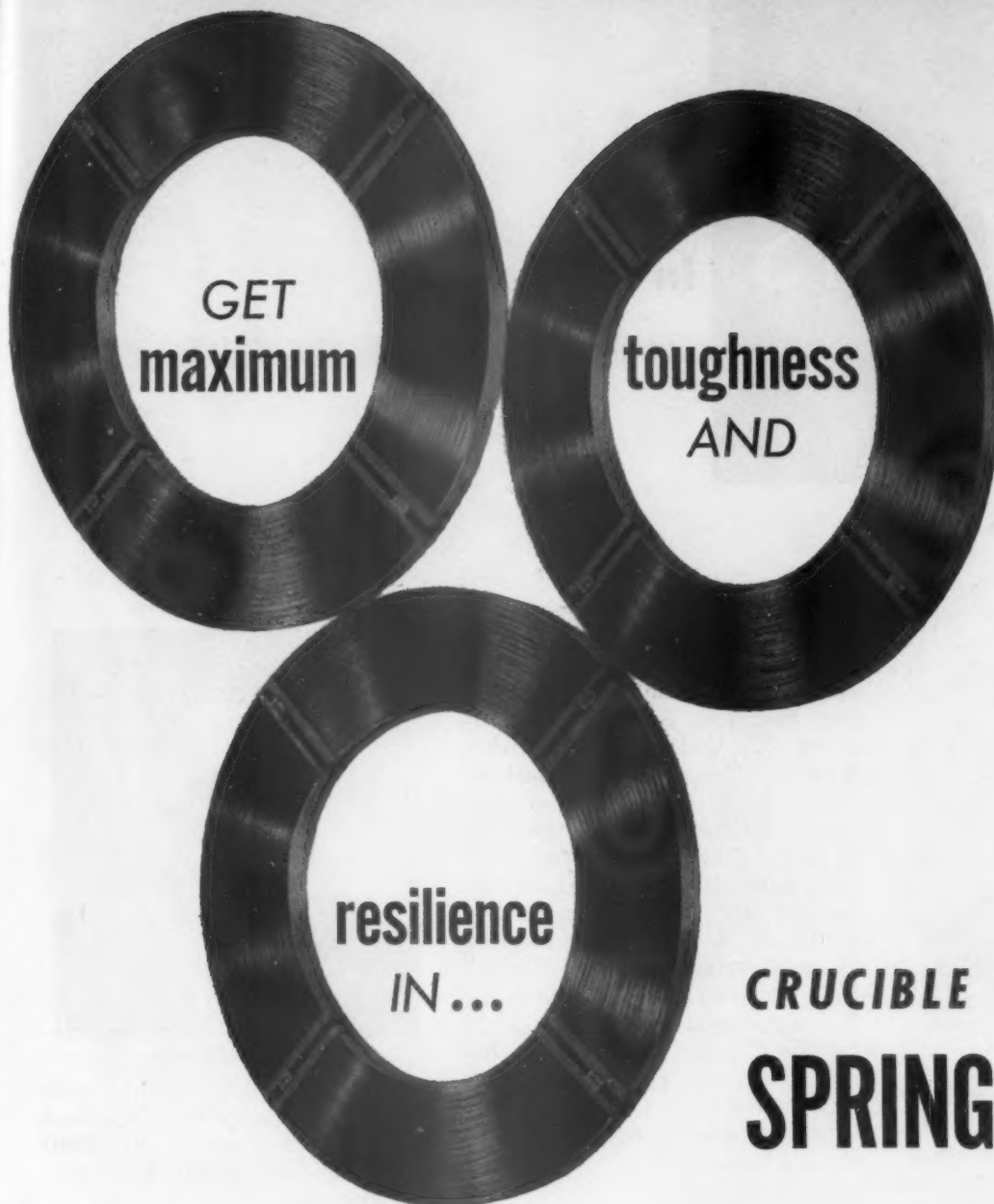
## CARBIDE TOOLS

Recent developments and additions to a line of carbide drills and cutting tools form text of catalog CC. There are 64 pages of listings, technical data, etc.

**Dept. CNR, Union Twist Drill Co.**

Circle No. 36 on Inquiry Card—Page 17

**Circle Inquiry Card Opposite Page 17  
to Obtain These Catalogs**



## CRUCIBLE TEMPERED SPRING STEELS

Crucible hardened and tempered spring steels give you the best combination of maximum toughness, resilience and resistance to fatigue.

You get exceptional *uniformity*, too. For once a standard for your application has been set, hardness tests, and bend tests for toughness, insure *exact duplication of production lots*.

Crucible hardened and tempered spring steels are promptly available in a full range of sizes, tempers and finishes — in coils or cut to your particular length requirements. And experienced Crucible metallurgists can help you make the best choice for your job. For information on cold-rolled tempered and specialty steels, get your free copy of Crucible's 32-page booklet. For your copy, mail the coupon to: *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*

Crucible Steel Company of America  
Henry W. Oliver Building, Pittsburgh 30, Pa.  
I'd like a copy of your 32-page booklet on cold-rolled specialty steels.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# CRUCIBLE

first name in special purpose steels

## Crucible Steel Company of America

# suppliers

## in the news



**J. D. Horth**

John D. Horth has been appointed assistant manager of the compressor sales department by De Laval Steam Turbine Co., Trenton, N. J.



**W. C. Dunn**

Warren C. Dunn is now assistant manager, General Apparatus Sales Department, Union Switch & Signal Division, Westinghouse Air Brake Co., Pittsburgh.

Eight new distributors have been appointed by **Vascoloy-Ramet Corp., Waukegan, Ill.** They are: Fairmont Supply Co., Fairmont, W. Va.; Harris Brothers, Kilgore, Texas; Art's Machine Shop, Enid, Okla.; Fiskus Machine & Tool Co., Tonawanda, N. Y.; Asheville Industrial Supply, Asheville, N. C.; Tidewater Supply Co., Inc., Greensboro, N. C.; A. S. Guile Co., Dayton, O.; and Aviation Service Supply Co., Denver. At the same time, V-R appointed three new agents for the Chicago and southern Indiana territory. They are: Matzen & Fortner Co., Chicago; L. F. Rogers, Chicago; and David W. Bristol, Chicago.

**National Bearing Division, American Brake Shoe Co., New York**, has appointed Harry E. Connors as general manager of railroad sales. He was formerly district sales manager.

William G. Swalwell has joined the **Monomer Department, Chemical Division, The Borden Co., Los Angeles**, as a technical representative. He will be dealing primarily with polyvinyl alcohol, acrylic rubbers and methac solvents.

Stanton Cecil, Jr., has been named regional sales manager for Koolfoam cushioning, foam rubber division, the **Dayton Rubber Co., Dayton, O.**



**W. F. McCormick**

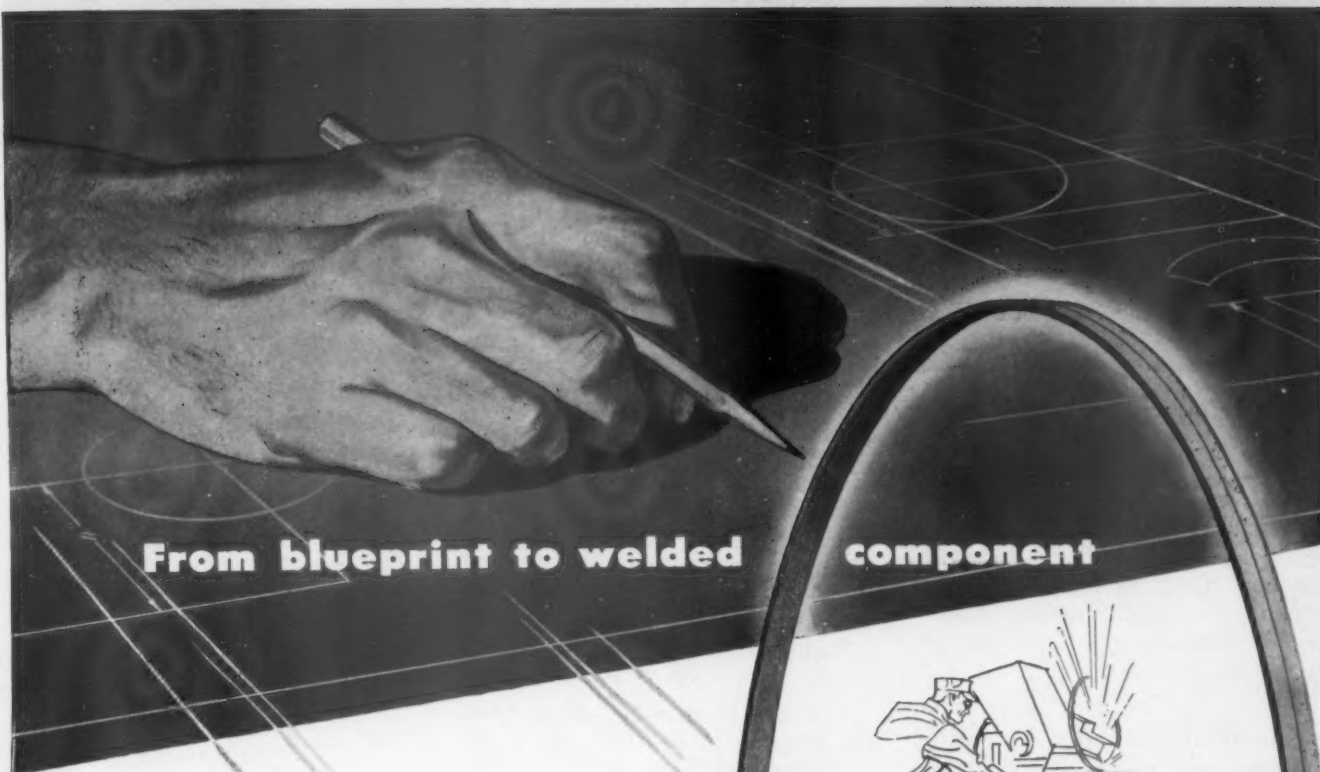
William F. McCormick is now district manager at the Cleveland district sales office for the **Reliance Division, Eaton Mfg. Co., Massillon, O.**



**L. E. Richardson**

L. E. Richardson has been made assistant sales manager, in charge of a newly-created sales division to promote "D-P" special products, by **The Dicks-Pontius Co., Dayton.**





**From blueprint to welded**

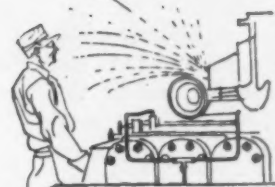
**component**

## **Let American Welding handle the job!**

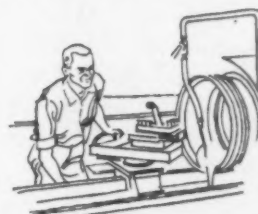
The next time design requires a circular weldment, or you think fabrication of a complicated weldment might be the best solution, give us a call. Our Industrial Products Division stands ready to assist manufacturers with problems involving fusion or resistance welding of all types of metals. In addition, we are actually a complete manufacturing plant with the "know-how," the manpower, and the facilities to handle the operations required to produce finished welded components of complex design or assembly. Send today for our new 24-page catalog describing American Welding facilities that are available. Let us demonstrate what American Welding can do for you.



**WELDING**



**FABRICATING**



**MACHINING**



# **AMERICAN WELDING**

THE AMERICAN WELDING & MANUFACTURING CO.  
460 DIETZ ROAD • WARREN, OHIO

# suppliers

A new sales manager in the cathode ray tube sub-department has been announced by **General Electric Co., Syracuse**. He is Brooks A. Kafka, former manager of marketing administration in the department.

**Allis-Chalmers Mfg. Co., Milwaukee**, has named Herbert K. Kingsbury as manager of product sales, centrifugal pump section, Norwood works.

Saba & Weinstein, Chicago, has been appointed a sales agent for **Pittsburgh Standard Conduit Co.** They will handle rigid steel conduit, electrical metallic tubing, elbows, couplings, and fittings in the Chicago area.

**Pressed Steel Tank Co., Milwaukee**, has appointed two new district representatives. Robert P. Ricker has been named to the Philadelphia territory, and Paul D. Kelly to Minneapolis.

Richard J. Ward has been appointed a sales representative in the Chicago area by **T. B. Wood's Sons Co., Chambersburg, Pa.**

**Accurate Threaded Fasteners, Inc., Chicago**, has named Larry A. Pulley as general sales manager. Accurate makes screws, nuts, bolts, washers, rivets and similar industrial fasteners.

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Additional "Suppliers in the News" will be found following the Industrial Development section

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**Roll Formed Products Co., Youngstown O.**, manufacturer of continuously rolled metal shapes, has appointed The Fehlenberg Co., St. Louis, as representative in the central Mississippi Valley area. Fehlenberg will cover Missouri, eastern Kansas, southeastern Nebraska, and southern Illinois.

**Baldwin-Lima-Hamilton Corp., Philadelphia**, has named G. G. Crawford as sales manager for B-L-H's entire line of hydraulic turbines and related equipment.

Joe B. Gibson has been appointed a special representative-line pipe projects in the **Tubular Products Division, Jones & Laughlin Steel Corp., Pittsburgh**.

**Johnson Bronze Co., New Castle, Pa.**, has announced two sales appointments. Joseph T. McGowan has been named district sales representative for the northwest territory. He will cover Washington, Oregon, Idaho, western Canada, Montana, and Wyoming. B. A. Jared takes over as sales representative in the Cincinnati area.

**Keystone Steel & Wire Co., Peoria, Ill.**, has appointed George E. Piper, Jr., as director of product and market research.

The appointment of Ross-Wiloughby Co., Columbus, as distributor for its line of machinery mounts has been announced by **Barry Controls Inc., Watertown, Mass.**, manufacturer of shock and vibration isolation equipment.

John O. J. Shellenberger, vice president, has been named director of marketing of the **American Chemical Paint Co., Ambler, Pa.** In his new capacity, he will supervise sales and marketing activities of the firm's three main divisions: metalworking chemicals, agricultural chemicals, and the International Division.

J. D. Hudson, formerly special petroleum representative in the south for **Oakite Products, Inc., New York**, has been named to the new post of field manager of the



**J. D. Hudson**

industrial cleaning firm's petroleum service division. He will retain his Dallas headquarters.



**J. L. Perrott**

James L. Perrott has been appointed sales manager for **Chandler Boyd Co., Pittsburgh**.



**F. W. Lynch**

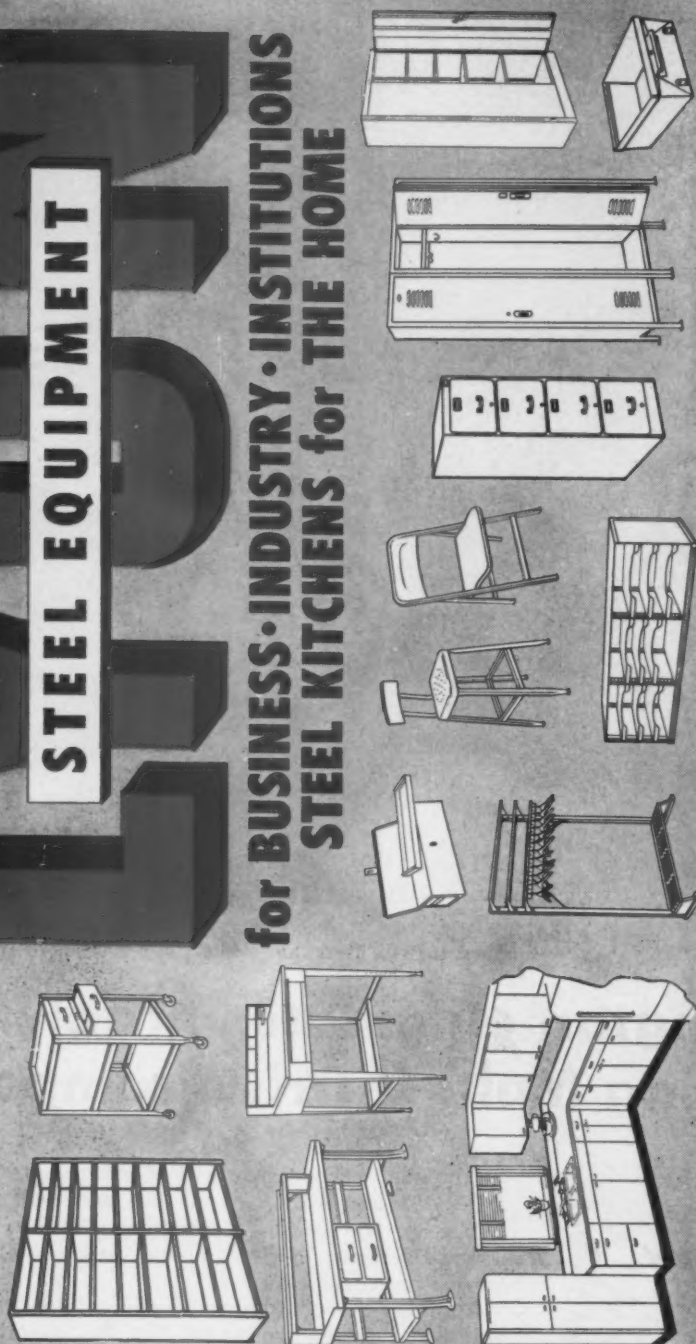
Frank W. Lynch has been put in charge of the newly-created Automotive Division of **Tyson Bearing Corp., Massillon, O.** Tyson is a subsidiary of SKF Industries, Inc., and will now provide tapered roller bearings to the automotive industry.

Lyon also has  
complete facilities for  
manufacturing special items  
to your specifications

# LYON<sup>®</sup>

## STEEL EQUIPMENT

for BUSINESS • INDUSTRY • INSTITUTIONS  
STEEL KITCHENS for THE HOME



### A PARTIAL LIST OF LYON STANDARD PRODUCTS

- Shelving
- Lockers
- Stools
- Bin Units
- Kitchen Cabinets
- Cabinet Benches
- Storage Cabinets
- Drawing Tables
- Tool Trolleys
- Bar Racks
- Tool Boxes
- Parts Cases
- Chests and Safes
- Display Equipment
- Toolroom Equipment
- Wood Working Benches
- Folding Chairs
- Coat Racks
- Work Benches
- Bench Drawers
- Hanging Cabinets
- Service Carts
- Sorting Files
- Drawer Units
- Hopper Bins
- Tool Stands
- Shop Boxes
- Tool Trays
- Shop Desks

**LYON METAL PRODUCTS, INC.**

General Offices: 233 Monroe Ave., Aurora, Ill.  
Factories in Aurora, Ill. and York, Pa.

Dealers and Branches in All Principal Cities

Ask  
your  
**LYON**  
Dealer  
for-





**FAST DELIVERY** of QD sheaves and Worthington-Goodyear V-belts is assured. Warehouses stock 872 sizes and a total of 75,000 different V-drive combinations.

## How Worthington eliminates problems in ordering Multi-V-Drive components



**WAREHOUSES LOCATED AT:** Kearny, N.J. • Oil City, Pa. • Seattle  
San Francisco • Los Angeles • Denver • Tulsa • Ft. Worth • Houston  
New Orleans • Chicago • Cleveland • Atlanta, Ga.

**EXPANDED FACTORY WAREHOUSE FACILITIES** means you never need wait for your sheave or belt order to be filled. Stars show location of warehouses; dots indicate approximate location of more than 300 distributors in major industrial areas.

You've probably heard plenty of good things about the Worthington QD sheave and Worthington-Goodyear V-belts.

But are you aware of Worthington's new, expanded facilities? They're designed to give you the speediest selection, delivery and service you could want.

The map shows where we've added fully-stocked warehouses. If you should ever be around Oil City, Pa., we invite you to stop in to see what we've done in streamlining our production facilities to keep those warehouses full as well as to maintain quality production of the famous QD sheaves.

You should, by now, have a copy of the Worthington Master Engineering Manual that makes sheave and belt selection easier than you ever imagined it could be. If you haven't received it, write us today. Worthington Corporation, Mechanical Power Transmission Division, Oil City, Pa.

MV.5.7

# WORTHINGTON



**SPECIFY THESE WORTHINGTON STANDARD PRODUCTS ON YOUR EQUIPMENT**

**Compressors • Pumps • Multi-V-Drives • Variable Speed Drives**

For More Information Circle No. 171 on Inquiry Card—Page 17

*It's Super Safe...*  
*It's Super Sharp...*  
*It's Super Strong...*

**IT'S THE HAND HACK SAW BLADE THAT WILL NOT SHATTER!**

Twin to Disston's famous non-shatterable machine blade, here's the hand hack saw blade that meets your rigid requirements for safety.

It's shatterproof—made of high speed steel with hardened cutting edge, a super-safe blade that combines the long cutting life of high speed steel with maximum flexibility.

Ask your Disston distributor today for a demonstration of this new super-safe blade with Disston's No. 368 frame.

### **Henry DISSTON DIVISION**

*H. K. Porter Company, Inc.*

233 Tacony, Philadelphia 35, Pa.

Other factories and branches:  
 Toronto, Ont.; Seattle, Wash.; Chicago, Ill.

**the right blade makes  
 all the difference.**

Ask your Disston distributor for your free Hack Saw Blade Selector . . . handy guide for choosing the right blade type for every job . . . or write Disston Division.

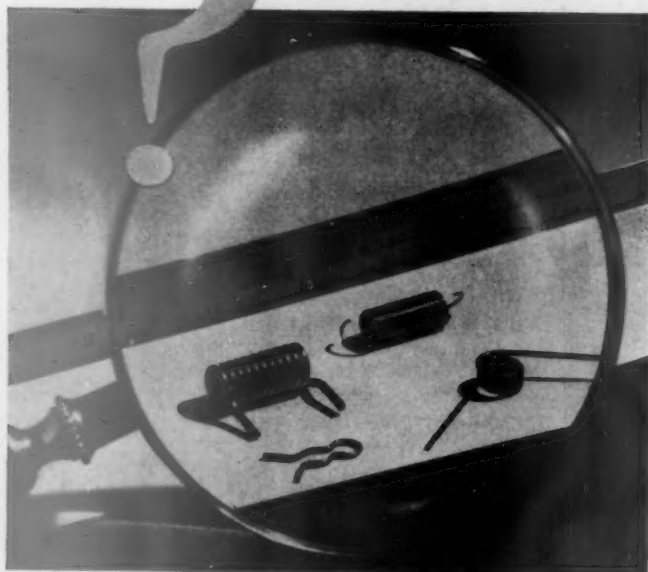
### **A PLEDGE** from Henry DISSTON DIVISION

Today as a proud division of H. K. Porter Company, Inc. we pledge ourselves to continue to provide the fine tools and fine steel for which the Disston name has been famous for over a century. You can count, too, on outstanding service from our engineering and distributors' staffs.

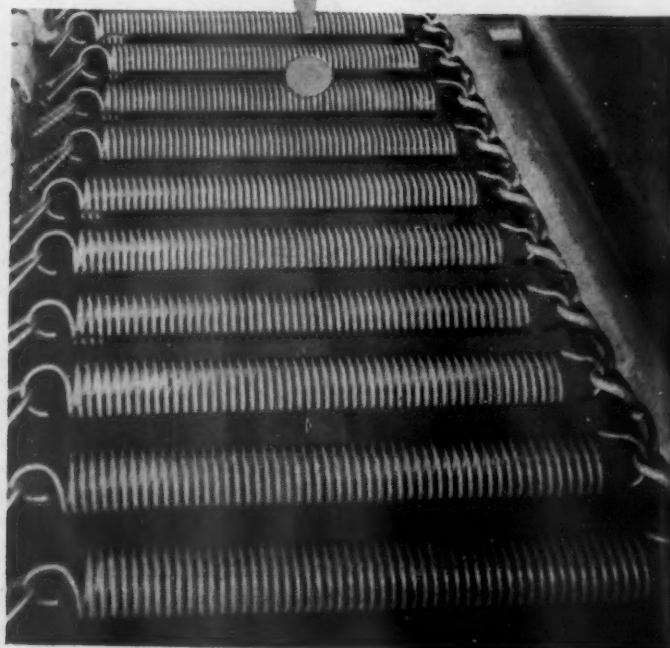


BIG ?  
springs •

-little  
springs



-simple ?  
springs





# Get custom-made performance and volume prices with American Quality Springs



SOME OF OUR BEST CUSTOMERS still find it hard to believe that American Steel & Wire can turn out such an incredible variety of springs: we make extension springs, compression springs, torsion springs, motor springs, flat spiral springs, flat springs, and wire forms with an endless variety of end formations. Cold wound and heat treated.

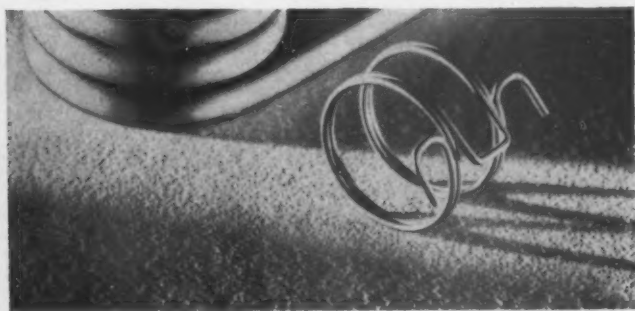
Materials? Carbon steel wire, hard drawn, oil tempered and annealed, music wire, chrome-vanadium wire, Stainless Steel, monel, phosphor bronze, brass or just about any other spring metal you can name.

Finishes? Springs can be supplied ground, polished, shot blasted, ball blasted; coated with japan, lacquer, zinc, cadmium, copper, nickel or just about any other material that can possibly be applied.

American Steel & Wire can supply completely fabricated spring assemblies, too. A complete assembly department can produce, *at low cost*, such items as parking brake assemblies.

Take advantage of our complete spring engineering design service, this great range of varieties; get rapid delivery and low prices—with American Quality Springs. Just call your nearest AS&W salesman.

tricky springs



AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO  
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



## USS AMERICAN QUALITY SPRINGS

UNITED STATES STEEL

**ULBRICH**  
Stainless Steels

THIN GAUGE

The **BIGGEST** Little  
Converting Mill  
in the Country

EDGE ROLLING

Specialists in small  
orders—a foot or  
a pound and up

SLITTING

**STRIP** Flat Wire  
converted  
to your exact  
requirements

Complete Inventory—  
Delivery from Stock

**ULBRICH**  
Stainless Steels  
Established 1924  
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Wallingford COlony 9-7771

*Certified*  
ANALYSIS  
FOR ALL GRADES  
OF STAINLESS STEEL

For More Information Circle No. 174  
on Inquiry Card—Page 17

f.o.b.

• • **filosofy of buying**

**A** WARM human interest story comes from Roseville, Mich., where James D. Bottomley has recently been appointed Purchasing Agent. Bottomley has been blind since the age of 18, when he was struck by an automobile. But his appointment is strictly on merit. He attended the University of Michigan and Michigan State University, worked in a factory during World War II, and has been a successful business man on his own account.

A staff writer from the *Detroit Free Press* sat in his office as an observer. Bottomley motioned to a waiting office appliance salesman. "Let's have a look at the machine," he said, and plied the salesman with pertinent questions on its performance, durability and maintenance while his sensitive fingers "looked" it over carefully. A requisition was placed on his desk. From his highly developed memory he plucked the phone number of every dealer in the area and began taking bids. Roseville village officials expect to save \$50,000 annually through Mr. Bottomley's department.

**T**HE Hoover Commission, dedicated to the cause of economy in government expenditure, wound up its affairs with rare consistency. It turned back to the Treasury an unspent balance of \$83,000 from its appropriation.

**C**ARELESS typography and proofreading in the December FOB column brought a rosy blush to these normally sallow features when we discovered, belatedly, that a "4" had dropped out of the

type line. As a result, the reference to our newest 42nd Street neighbor read: "the world's largest stainless steel skyscraper—the 5-story Socony Mobil Building." If you see it in print, it ain't necessarily so. Our abject apologies go to Socony Mobil for the belittling description. As every man-about-midtown knows, the 5th story just about marks the first set-back of this imposing structure. It's the 45th story that casts its shadow across our office window in the late afternoon. A sympathetic correspondent writes: "Well, anyway, it's the world's largest stainless steel midget skyscraper."

**O**UR embarrassment is somewhat tempered by the knowledge that it can happen to others, too. Specifically, we note in one of the surveys on the business outlook, published in an esteemed contemporary journal, this heartening prediction: "Expansion costs will range above \$10 for individual companies in 1956." They dropped only 6 ciphers, but it does make a difference.

**M**AYBE cautious business columnist Sam Dawson of the Associated Press had something like this in mind when, in a recent release, he characterized all business polls as "plain and fancy soothsaying." Maybe he was merely cautioning his readers to consider the source in evaluating

business statistics and predictions. But beyond this prudent journalistic qualification, Mr. Dawson does us the honor of quoting PURCHASING's September Purchasing Opinion Poll on the trend toward further inflation as an authoritative statement and appraisal of the current situation.

CHAIRS seem to hold a prominent place in current purchasing news. We read that State P. A. Charles Horne of New Mexico recently changed the specifications on a requisition from the penitentiary, calling for 139 upholstered chairs. He substituted the plain hard-bottomed variety. Dan Burrows, who writes the "Pony Express" column in the Albuquerque Tribune, comments that this is probably more appropriate for hardened criminals.

ANOTHER chair buyer is P. A. Mary Porter of Antioch College, Ohio, who has had a pleasant decorating and buying spree in purchasing the furnishings for a new library and dormitory at the college. To insure comfort for the students, Mrs. Porter reports that all chairs going into the new buildings were "fanny-tested." She also admits making one "boo-boo" on the project, neglecting to provide pillows for the dormitory beds. It was a natural error. "My husband and I don't sleep on pillows," she explains. "It never entered my head until the housekeeper protested."

AND in *Hotel Reporter* we find the name of P. A. Irving Shure, of the Conrad Hilton Hotel, Chicago, commended (along with his teammates, Engineer Harold Toombs and Rehabilitation Manager George Boranski) for developing a new design of stacking chairs to be used in ballrooms and private dining rooms. The new chair is good looking, comfortable, and sturdy, simplifies problems of storage and handling, and—you guessed it—will reduce the cost substantially.

**Anti-Corrosive  
WIRE CLOTH**

- STAINLESS STEEL
- "NICHROME"
- "MONEL"
- PHOSPHOR BRONZE

*for*

- FILTER CLOTH
- SPECIAL PARTS
- STRAINERS
- SIEVES
- TRAPS
- SCREENS

Are you using wire cloth or wire cloth parts which must be corrosion resistant? Are the service conditions in your plant really tough? If you have a problem selecting the proper anti-corrosive alloy, Newark Wire Cloth may have the answer.

Available in all corrosion resistant metals, Newark Wire Cloth is accurately woven in a wide range of meshes, ranging from very coarse to extremely fine.

If you have a wire cloth problem involving corrosion, please tell us about it . . . we may have the answer.

**NEWARK**  
*for ACCURACY*

A complete line of woven wire cloth and wire cloth parts in all malleable metals.  
Send for Catalog E

**Newark  
Wire Cloth  
COMPANY**

351 VERONA AVENUE • NEWARK 4, NEW JERSEY  
For More Information Circle No. 175 on Inquiry Card—Page 17





## Veteran Chief takes post-graduate training at Ansul fire school...you can too

Throughout his entire career, Floyd Dumas has practiced what he preached... *you can't have too much fire training*. So it was logical that this veteran of 29 years' experience should attend Ansul's Fire Training School. As Chief of Fire Prevention for Parke Davis & Co., one of the nation's leading manufacturers of pharmaceuticals, his responsibilities are tremendous. The information Floyd took home from the Ansul School was passed on to each member of his staff who will be better firefighters for it.

You too can have this training. Ansul is the nation's pioneer in the field of fire training, and the only manufacturer to offer this important service to its customers. It is just one of many "extra" services made available to all Ansul users. And there is no charge

whatsoever. Since 1940 this unique school has graduated over 2,800 students from all over this hemisphere, parts of Europe, Asia, and the Middle East.

Training at the Ansul Fire School is of the practical kind. The classroom is Ansul's five-acre test field containing all the latest equipment, and staffed by expert instructors. You owe it to your business, to your position, to learn more about the Ansul Fire Training School.

Get in touch with your local ANSUL MAN through the yellow pages of your phone directory, or write to THE ANSUL CHEMICAL COMPANY, DEPT. P-2, MARINETTE, WISCONSIN.





## Best way to give a barker a stronger bite

**Y**ou head up maintenance at a Northwestern plywood plant.

Your job is to keep the plant humming. And you do, except for the discord being constantly struck by the mechanical barker.

Basically, the barker is a V-belt-driven rosser head, or cutter. It literally chews the bark and knots from big logs, before they are peeled by the veneer lathe. But ordinary belts can't stand the high shock and vibration — are chewed up themselves in anywhere from a day to two weeks.

Finally the P.A. sends the G.T.M.—Goodyear Technical Man — to you. He carefully calculates the drive, then

specifies 10 matched HY-T V-Belts—muscle with Triple-Tempered (3-T) Cord—for the job.

That was last year. Since then, those HY-T Belts have averaged *three months'* service—*six times* that of previous belts! And you're convinced the G.T.M. has the best answer to any industrial rubber problem. So you keep in touch with him through your Goodyear Distributor or Goodyear, Industrial Products Division, Akron 16, Ohio.

**It's smart to do business with your Goodyear Distributor.** He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."

HY-T—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

# GOOD YEAR

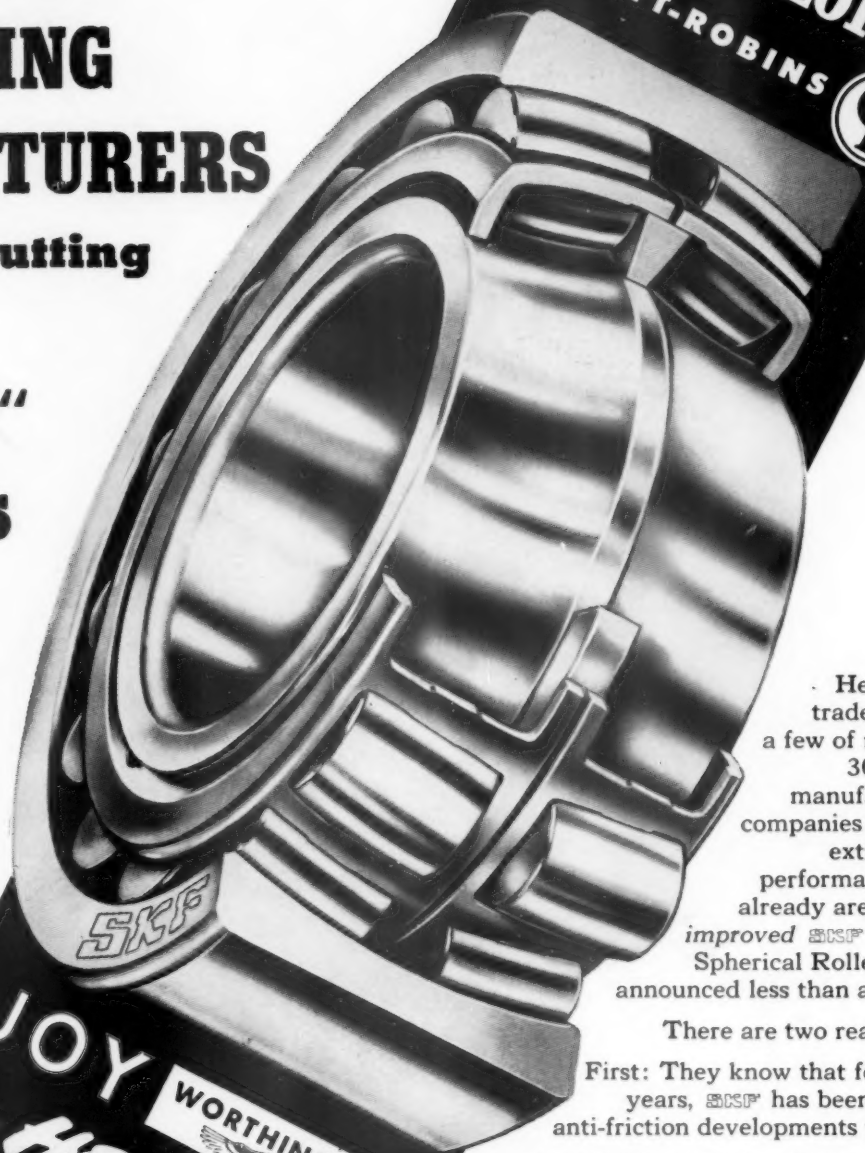
THE GREATEST NAME IN RUBBER


# MORE THAN 300 LEADING MANUFACTURERS

are already putting

## SKF TYPE "C" BEARINGS

in their  
products



*"Buffalo"* TYLER  
BELOIT  
HEWITT-ROBINS 

Here are the trade marks of a few of more than 300 leading manufacturers — companies who want extra bearing performance — who already are using the improved SKF Type "C" Spherical Roller Bearing announced less than a year ago.

There are two reasons why

First: They know that for over 40 years, SKF has been *first* with anti-friction developments that *work*.

Second: They obtain, size for size, up to 50% more capacity, 2 to 3½ times increased life with SKF's Type "C" Spherical than they can obtain with any other available design, and at no increase in cost.

7550

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.  
— manufacturers of SKF and HESS-BRIGHT® bearings.  
© 1954 — SKF Industries, Inc.

**SKF**®  
BALL AND ROLLER BEARINGS



For More Information Circle No. 178 on Inquiry Card—Page 17





## Tied up by tubing problems?

Let Rochester show you the ropes!  
From design to delivery, Rochester engineers and specialists work with you, assuring top-quality steel tubing and suggesting ways to save you time and money. GM Steel Tubing serves modern industry with top efficiency... and much more economically. That's why you'll find it on more cars—more refrigerators and freezers—more advanced products every day. GM Steel Tubing is rugged, reliable, flexible, versatile—designed to take it and take any shape. Contact your Rochester Products engineer or write us direct for further information.



**GM STEEL TUBING BY ROCHESTER PRODUCTS**

ROCHESTER  
PRODUCTS  
DIVISION OF  
GENERAL MOTORS  
CORPORATION  
ROCHESTER N.Y.



## NEW LIGHTWEIGHT YALE HAND PALLET TRUCK

### ★ Less operator effort

New Yale Model A Hydraulic Hand Lift Pallet Truck is lighter than any other hand truck with a capacity of 2000 lbs. Weighs only 200 lbs., resulting in less pulling effort by the operator—less operator fatigue.

### ★ Smoother lifting and lowering of forks

Operator can lift heavy loads 4 inches with 9 easy foot pedal strokes. Controlled lowering gives cushion action to protect fragile loads from handling shocks.

### ★ Easier to maneuver when loaded

Lightweight construction of Yale's new Hand Pallet Truck makes maneuvering easier even when truck is fully loaded because there's less deadweight to pull or push. Dual articulated steering wheels provide ease of steering and maximum stability over rough surfaces.

### ★ More grade clearance

Compression tubes, used for lifting, are mounted high in the forks and allow 50% more underclearance than other hand trucks.

### SPECIFICATIONS:

- Capacity: Hydraulic Lift up to 2000 lbs.
- Weight with 48" forks: 200 lbs.
- Ground clearance: Lowered—1 3/8"; Raised—5 3/8".
- Handle: Balanced Spring Type.
- Fork Lengths: 30" to 72" in 6" increments.
- Bearings: Front wheels—Tapered Roller Bearings; Rear wheels—Ball Bearings

**Low Cost...** Find out more about the new Yale Model A Pallet Truck—the lightest hand truck of its type ever built. Its low initial cost writes itself off fast in daily handling savings. For complete information, write Yale & Towne Mfg. Co., Philadelphia 15, Pa., Dept. 252.

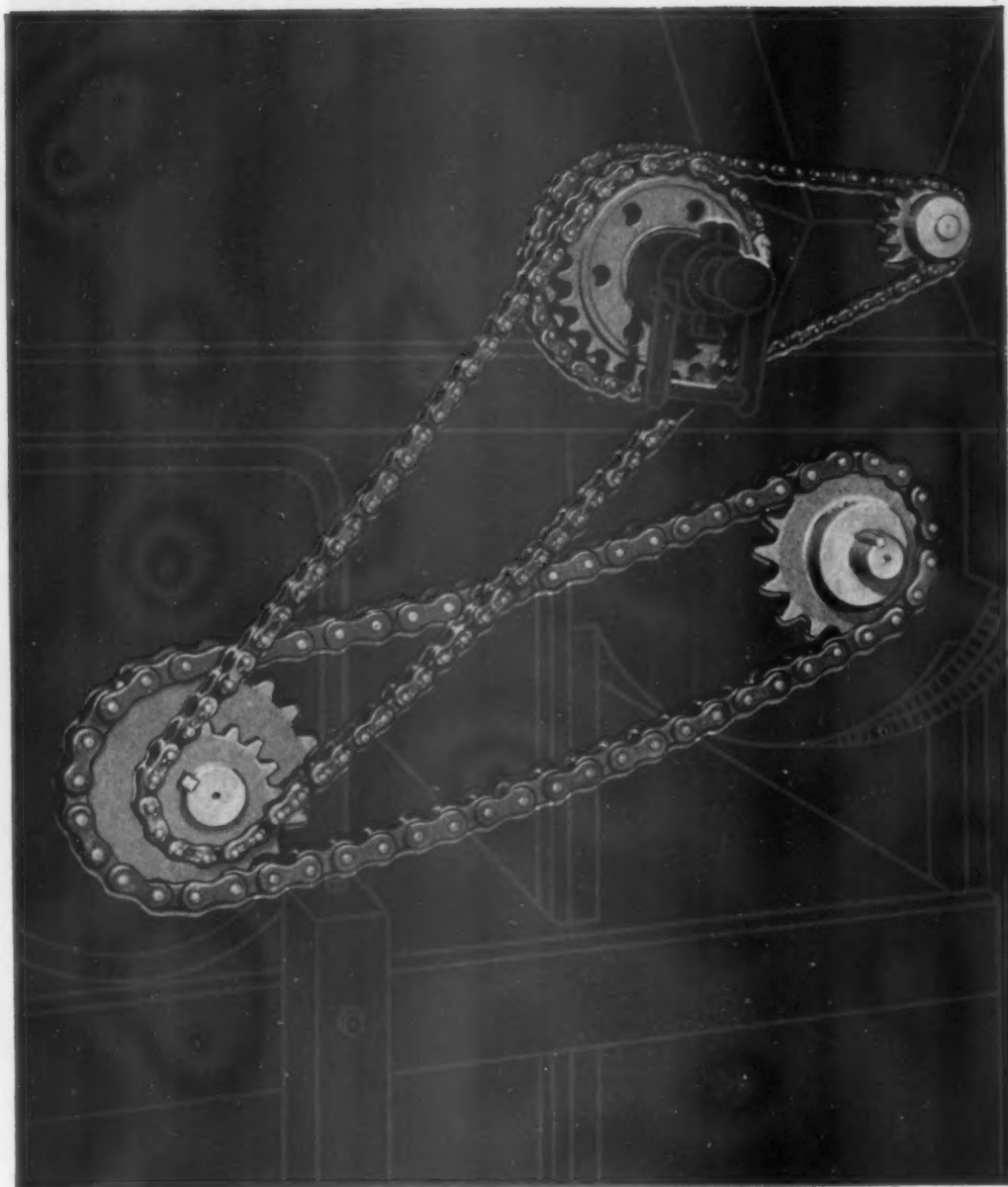
# YALE\*

\*REG. U.S. PAT. OFF.

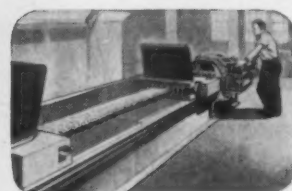
## INDUSTRIAL LIFT TRUCKS AND HOISTS

Gas, Electric, Diesel & LP-Gas Industrial Trucks • Worksavers • Warehouseurs • Hand Trucks • Hand and Electric Hoists  
For More Information Circle No. 180 on Inquiry Card—Page 17

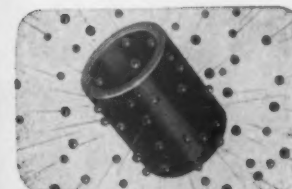
# In 'roller chain... EXTRAS\* like these give you extra reliability



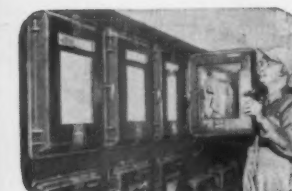
**LOCK-TYPE BUSHINGS** (applied on a range of sizes) end a cause of stiff chain.



**PRE-STRESSING** of multiple width chain provides uniform load distribution.



**SHOT-PEENED ROLLERS** have greater fatigue life, added ability to withstand impact.



**CLOSER HEAT-TREAT CONTROL** — coupled with rigid testing insures uniformity.

**\*And you pay no premium for these LINK-BELT extras**

**B**IG reason why Link-Belt Precision Steel Roller Chain is first choice for so many tough jobs is that it has *extra reliability built-in*. For example, pre-stressing smooths out any irregularities of multiple width chain *in advance*. And it's just one of many *extras* you get as *standard* from Link-Belt. Check the three others shown here. Then call the Link-Belt office or authorized stock carrying distributor near you for facts on Link-Belt's complete range of roller chain and sprockets. Data Book 2457 gives full information on single and multiple widths, in  $\frac{1}{4}$ " to 3" pitch, 1" to 3" double pitch. Ask for your copy.

**LINK-BELT**  
ROLLER CHAIN & SPROCKETS

19,702

**LINK-BELT COMPANY:** Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Austria, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

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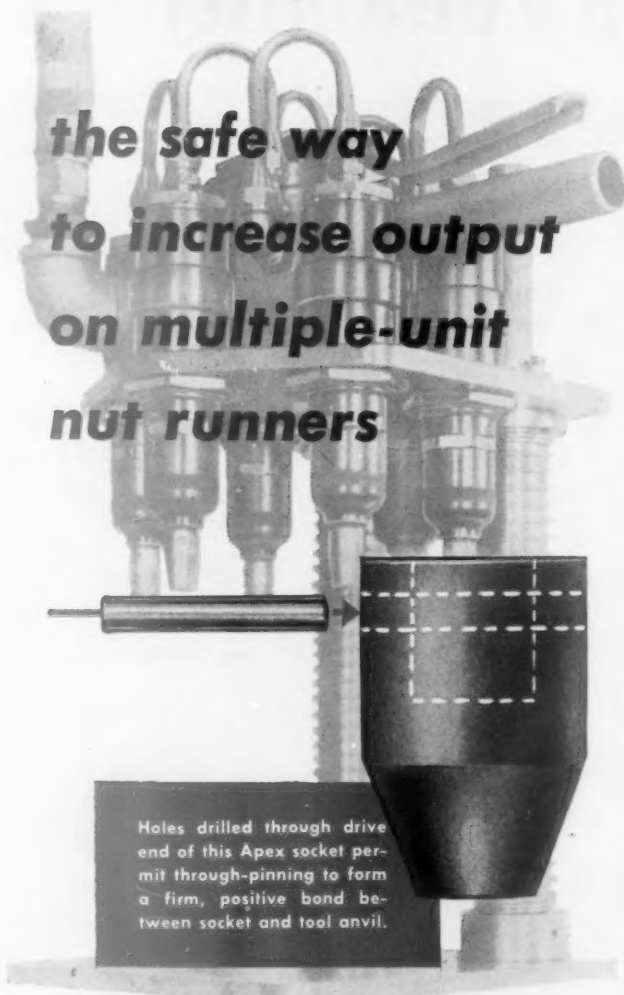
FEBRUARY, 1956

37



# APEX *"pin-through"* SOCKETS

**the safe way  
to increase output  
on multiple-unit  
nut runners**

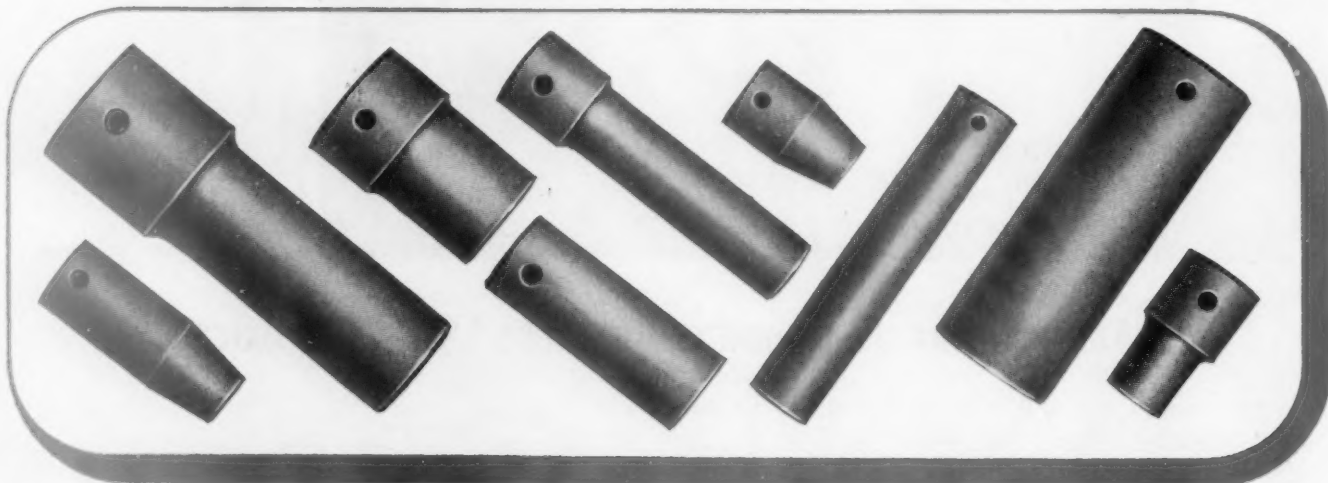


Holes drilled through drive end of this Apex socket permit through-pinning to form a firm, positive bond between socket and tool anvil.

You can make certain you're getting the most work from your multiple-unit nut runners by using Apex "pin-through" sockets. Designed specifically for such use, these Apex impact sockets eliminate the troublesome, often dangerous, dropping off of sockets while tool is in operation.

Apex offers a full range of impact sockets for use on multiple-unit nut runners. Three basic types—straight, tapered and shoulder . . . standard or magnetic . . . square drives from  $\frac{3}{8}$ " to 1". Available for use with hex nuts, cap screws, sheet metal screws . . . also offered in deep bolt-clearance type.

For your multiple-unit nut runners . . . and for all your nut running requirements, Apex alone offers the most complete line of impact sockets, extensions, adapters and universal wrenches. Catalog 29-R lists more than 5,000 stock types and sizes. Write today, on your company letterhead please, for your copy.



Ask **APEX** for the answer to your nut running problem!

**THE APEX MACHINE & TOOL COMPANY**

1034 S. Patterson Blvd. • Dayton 2, Ohio

For More Information Circle No. 182 on Inquiry Card—Page 17



Question about quality?

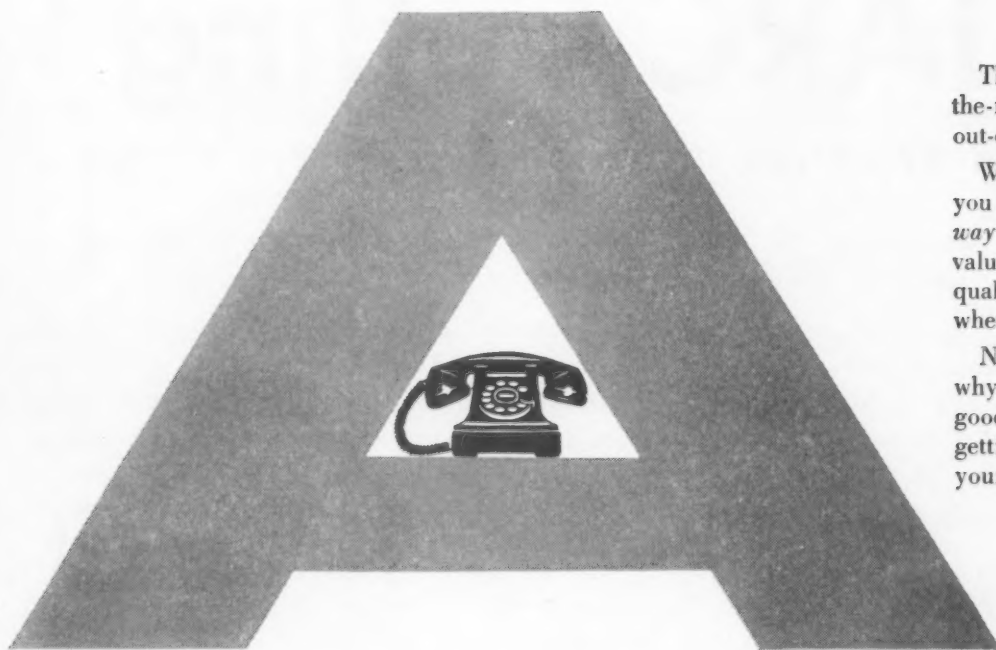
Can you find a better price?

Would it pay to buy  
a larger amount?

Uncertain about  
a delivery date?

What kind of service  
can you expect?

**Get the right answers right now by telephone**



The quick, easy way to get up-to-the-minute purchasing facts from out-of-town sources is by telephone.

What's more, the telephone gives you the advantage of *personal, two-way* contact. And you know the value of talking over price, terms, quality, delivery and other factors when you buy things.

Next time you are in the market, why not try the telephone? It's a good way to make sure you are getting the most and the best for your money.

**LONG DISTANCE  
RATES ARE LOW**

Here are  
some examples:

New York to Philadelphia . . .	50¢
Cleveland to Indianapolis . . .	90¢
Chicago to Pittsburgh . . .	\$1.15
Boston to Detroit . . .	\$1.40
Washington, D. C., to San Francisco . . .	\$2.50

These are the daytime Station-to-Station rates for the first three minutes. They do not include the 10% federal excise tax.

**Call by Number.  
It's Twice as Fast.**



**BELL TELEPHONE SYSTEM**



# HELIARC Cutting

TRADE-MARK

**CUTS ALUMINUM AT SPEEDS UP TO 300 INCHES PER MINUTE**

HELIARC cutting, a new process developed by LINDE, brings all the desired features of economical high-speed operations to the cutting of aluminum.

★ **Speeds never before possible:** Normal mechanized cutting speeds are 300 in. per min. in ¼-in. material, 125 in. per min. in ½-in. material, 75 in. per min. in ¾-in. material, and 50 in. per min. in 1-in. plate. If desired, lower speeds can be obtained by simply adjusting the controls.

★ **Straight lines, bevels, contours—no problem:** The new HELIARC cutting process can be used mechanically or manually. Both setups produce high-quality straight line


cuts, bevels, circles, and shapes with revolutionary new speed and efficiency.

HELIARC cutting employs a high-temperature, high-velocity, constricted arc between a tungsten electrode and the piece to be cut. The concentrated, columnated energy of the arc stream melts and ejects a thin section of metal to form a kerf. The gas atmosphere (a combination of argon and hydrogen) prevents oxidation of the cut face.

Learn the details of how HELIARC cutting can help you increase production and cut operating costs. Call your LINDE Representative today.

## **Linde Air Products Company**

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada: LINDE AIR PRODUCTS COMPANY

Division of Union Carbide Canada Limited, Toronto

"Heliarc" and "Linde" are registered trade-marks of Union Carbide and Carbon Corporation.





# automation in mind?



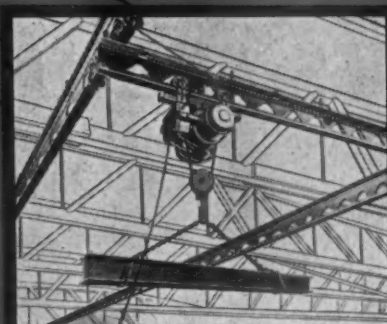
## PLAN TO SPEED "FLOW" WITH OVERHEAD CRANE HANDLING!

Read the Whiting just-published 12-page booklet "Planning the Crane for Its Use in Automation!" It gives important information regarding the various types of overhead cranes...top running, underhung, monorail and gantry. It will help you determine the best system to handle your materials or products...quickly, smoothly, and at lower cost. Written by a specialist with many years of practical experience in solving handling problems, it will be of interest and value to you. Write today for your copy of Bulletin M-30.

### WHITING CORPORATION

15616 Lathrop Avenue, Harvey, Illinois

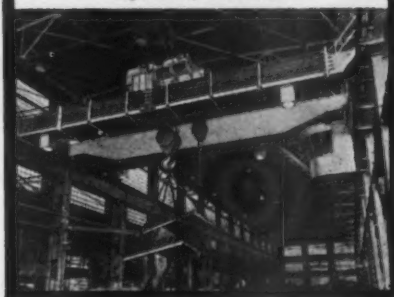
Manufacturer of Overhead Cranes; Trambeam  
Handling Systems; Trackmobile; Foundry,  
Transportation and Chemical Processing Equipment.

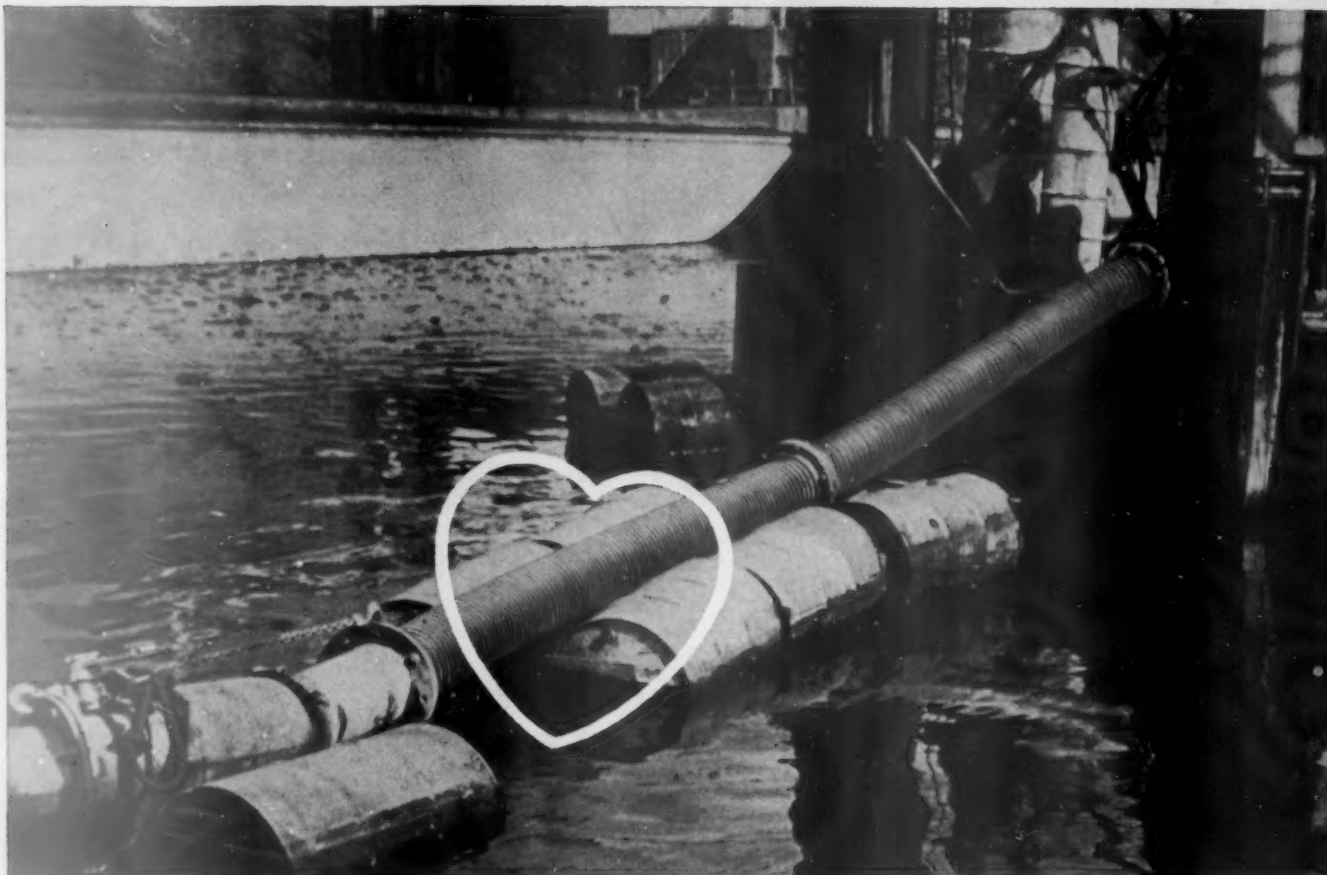


Whiting Trambeam is the most flexible overhead handling system.



Whiting Engineered Cranes handle big loads up to 500 tons.





## GIVES AND TAKES...PREVENTS BREAKS

Penflex Metal Hose Lasts As Much As Three Times Longer...

Every dredge must have a flexible coupling between the rigid pipes from dredge to land or the motion would break it. Recently a large operator on the Ohio River switched to Penflex from other hose and found his dredging sleeves now last as much as three times longer... plus cutting the costs of sleeves.

Penflex Flexible Metallic Tubing is made to stand up and take it under the most severe operating conditions. It is as tight and tough as a pipe, but flexible. Conveys fluids, semi-solids, granular and abrasive materials at the lowest cost per ton or cubic yard. Keeps maintenance and replacement time at a minimum. The extra quality of Penflex pays off in extra

service on the job!

Whatever the size of the flexible tubing you need... as small as 1/8" ID or as large as 24" ID... bronze, steel, galvanized, stainless steel, wire braided... for transmitting volatiles or solids Penflex makes them all to fit your requirements. Penflex "Flexineering" assures the right type of flexible metal tubing on each installation for the longest, most economical wear. Write today for your copy of "Flexineering"—see how flexible metallic tubing can cut your costs.

Pennsylvania Flexible Metallic Tubing Company, Inc., 7218 Powers Lane, Philadelphia 42, Penna. • Branch Sales Offices: Boston New York • Chicago • Houston • Cleveland and Distributors in Principal Cities



FLEXIBLE TUBING, AUTOMATIC BARREL FILLERS, PNEUMATIC RIVET PASSERS, ACCESSORIES AND FITTINGS

For More Information Circle No. 186 on Inquiry Card—Page 17  
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For More Information Circle No. 187 on Inquiry Card—Page 17→  
PURCHASING

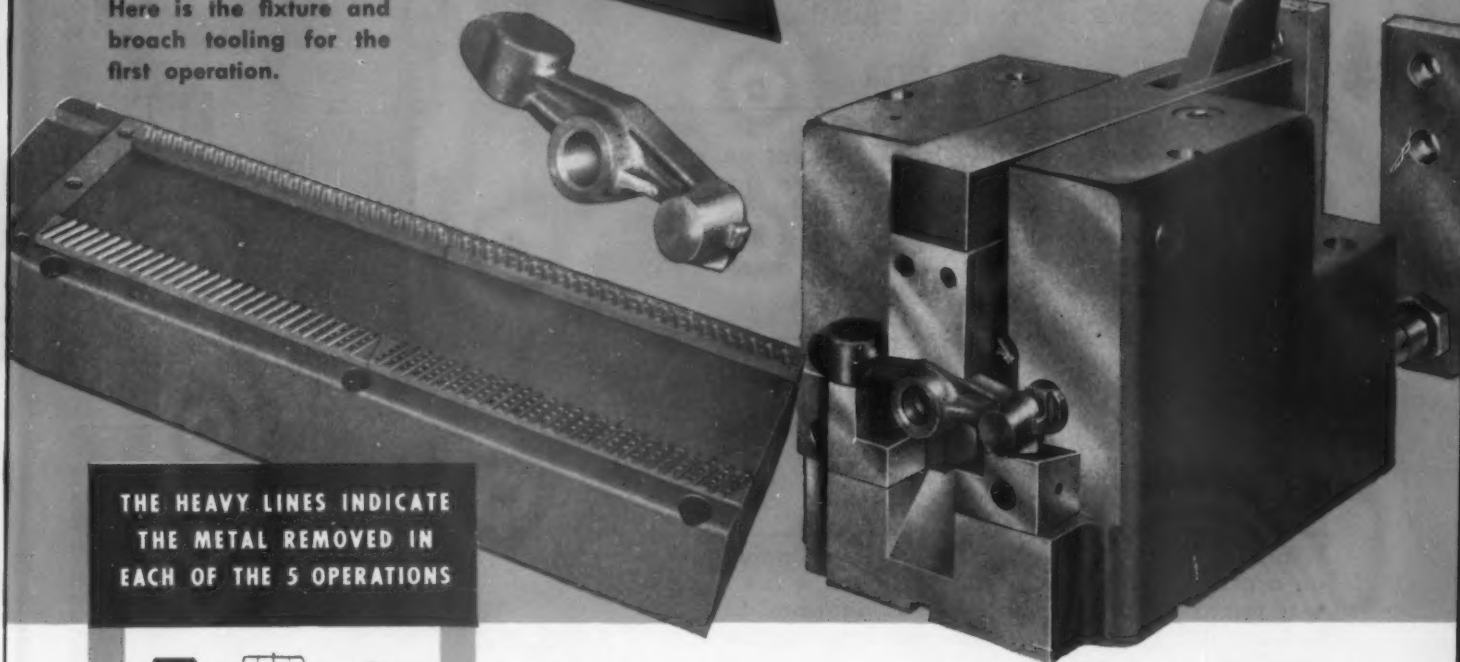
# Complete BROACH TOOLING for Customer's Machines

## CONTINENTAL CAN RETOOL YOUR PRESENT BROACHING EQUIPMENT FOR HIGH PRODUCTION AND INTERCHANGEABILITY, AT MINIMUM COST

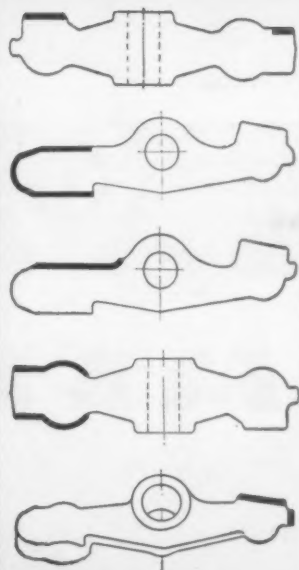
These forged steel rocker arms are economically processed with Continental designed and built broaches, holders and fixtures. The work is done in five operations on two vertical surface broaching machines, one having a single ram and the other a dual ram.

More and more manufacturers are turning to broaching for machining production parts. It's the fastest method of removing stock to precision limits. For a quotation on tooling for your broaching machines call in your local Ex-Cell-O Representative or contact the Continental Division of Ex-Cell-O in Detroit.

Here is the fixture and broach tooling for the first operation.



THE HEAVY LINES INDICATE  
THE METAL REMOVED IN  
EACH OF THE 5 OPERATIONS



**OPERATION 1:** Finish broach thrust face and broach locating surface at opposite end. Operation is done on single-ram vertical surface broach machine. Work is located in fixture on floating pin, which allows part to rest firmly on lower anvils when clamped. Spring loaded jacks are wedge locked automatically. Broaches for both cuts are carried in one holder. The only change necessary to accommodate opposite hand parts is to exchange adapters on the fixture.

**Continental**  **TOOL WORKS**

Division of EX-CELL-O Corporation, Detroit 32, Mich.



**On-The-Job Proof!**

# LQ600 VALVES

## STAND UP WHERE OTHERS FAIL!

*In four years of actual field tests, conducted by nearly 100 cooperating companies, NOT ONE LQ600 VALVE HAS EVER LEAKED OR FAILED.*



### CHEMICAL PLANT

"LQ600 is still tight after three years on a very tough 150 lb. steam service installation where competitive valves used to leak in 2 weeks to 2 months."



### MEAT PACKER

"We are writing to let you know how pleased we have been with the LQ600 Valves we put on our toughest lines. We installed these valves in three of the most difficult locations in our plant and have had trouble-free operation ever since they were installed."



### HOSPITAL

"LQ600 is still tight and functions perfectly after 31 months of service on a water column blowdown installation where competitive valves failed by wire drawing in two months."



### DISTILLERY

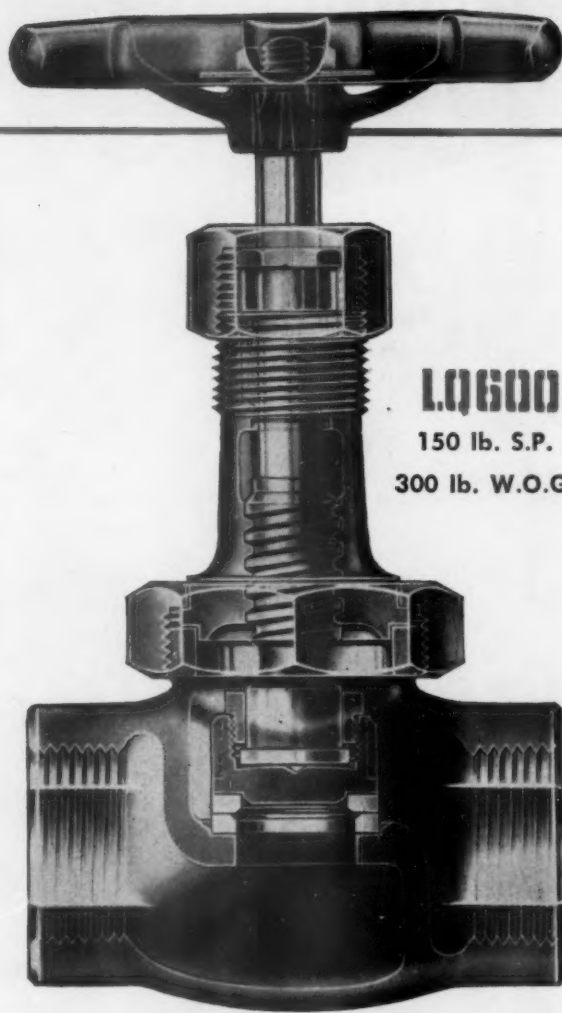
"An LQ600 Valve was installed for throttling service on a syrup line at 140°F. After 9 months the valve was removed for inspection. It was tight and in perfect condition. This valve was put into another test installation and is still tight."



### DAIRY PLANT

"The LQ600 Valve was installed more than three and a half years ago on a steam line with rust and scale present at all times. This valve has withstood service conditions where others were replaced on an average of once a year due to seat and disc erosion."

\* Patented Alloy



**LQ600**

150 lb. S.P.

300 lb. W.O.G.

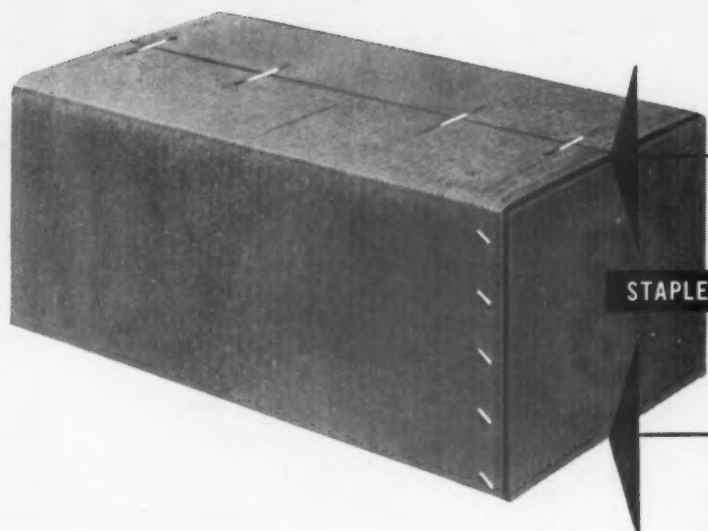
WRITE FOR Circular 602, a new four-page bulletin on the LQ600 Valve. Request it from your Lunkenheimer Distributor, or write The Lunkenheimer Company, Box 360, Cincinnati 14, Ohio.

# LUNKENHEIMER®

THE ONE *Great* NAME IN VALVES

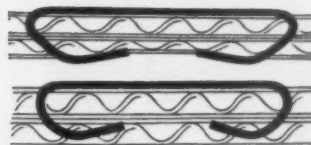
For More Information Circle No. 188 on Inquiry Card—Page 17

# New BOSTITCH BOXLOK seals your containers faster, more securely

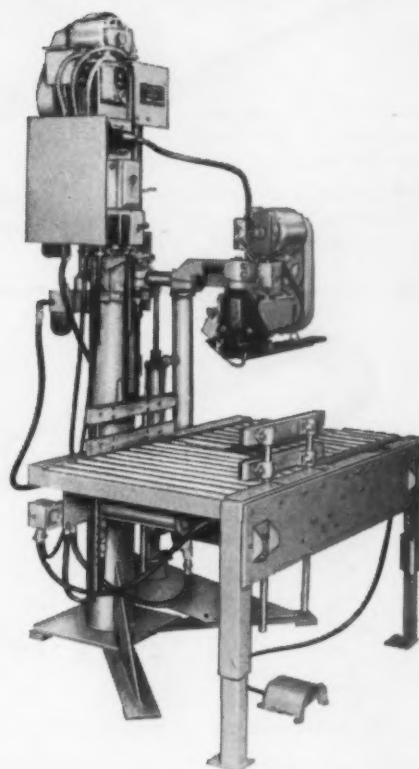


STAPLES TOPS AND BOTTOMS IN ONE PASS

STAPLE CLINCHES



- Tightly seals top and bottom flaps of regular slotted and overlapped containers . . . with wide-crown staples of .090 x .040 wire . . . requiring fewer staples per box . . . driven and clinched from the outside.
- Tops and bottoms stapled simultaneously—or tops only, if desired—at rate of over 100 stapling strokes per minute. Swivel heads permit quick change from diagonal stapling on overlapped flaps to right-angle stapling across flaps that meet. Separate 1/2-h.p. motor for each head.
- Cartons automatically centered to line up staples. Adjustable split centering device releases carton to permit free movement after each staple is driven.
- Staples automatically driven when the head lowers and contacts the carton.
- Cartons of varying widths, heights and lengths can be stapled without adjustment.
- Wearing parts easily accessible for quick replacement. Little service required.
- Meets requirement of parcel post, freight, overseas shipments.



**BOSTITCH BOXLOK TOP AND BOTTOM STAPLER**  
Model D12BT for use in conveyor lines. Other models for smaller production requirements.

*Fasten it better and faster with*



For specifications and other information, send coupon below

BOSTITCH, Inc., 722 Mechanic St., Westerly, R. I.  
Please send descriptive folder on new Bostitch Boxlok.

Name   
Business   
Address   
City  State

*Air Conditioning?*

*Heat exchange applications?*

*Design?*

What are **YOU** doing in Aluminum?

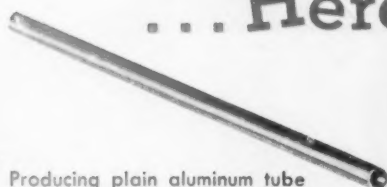
*Furniture?*

*Building?*

**MANUFACTURING REFRIGERATION EQUIPMENT?**

**GENERAL MANUFACTURING?**

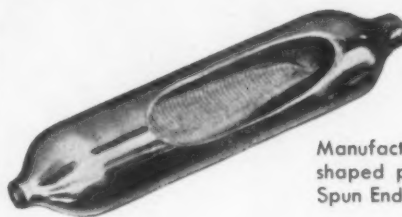
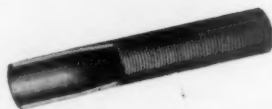
... Here's what **WE'RE** doing



Producing plain aluminum tube—drawn or extruded—in straight lengths or coils.



Making Wolverine Trufin\* in a variety of alloys in drawn or extruded aluminum.



Manufacturing one-piece, tubular-shaped parts via the Wolverine Spun End Process\*\*.



Fabricating tube—bending, beading, flaring, necking, reducing—to customer requirements.



Extruding aluminum—satin-smooth—into the shape you need and to your specifications.

... Let's get together!

If you are modernizing your products with aluminum ... cutting their weight ... improving their quality ... let's get together.

You'll find there's quality-plus in Wolverine aluminum tube and shapes—the kind of quality that's built only through years of metalworking experience. Wolverine's Field Engineering Service team is at your beck and call to answer questions on alloy, design, fabrication. Write

\*REG. U.S. PAT. OFF.  
\*\*A PATENTED PROCESS RE. 22465

for your copy of the aluminum catalog. It's loaded with information you can use.

WOLVERINE TUBE, 1427 Central Ave., Detroit 9, Mich.

Wolverine Trufin is available in Canada through the Unifin Tube Company, London, Ontario.



**WOLVERINE TUBE**

Division of Calumet & Hecla, Inc.

MANUFACTURERS OF QUALITY-CONTROLLED TUBING AND EXTRUDED ALUMINUM SHAPES

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 16, NEW YORK

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# Tuffy SLING NEWS



Vol. 1

Published Monthly in Leading American Trade Magazines by Union Wire Rope Corp.

No. 4

## HOW NEW FERRULE WORKS IS SHOWN IN FREE SLING BOOK



### Ferrule Story, Facts on Fittings and Slings In Useful New Edition

This new and enlarged edition of the Tuffy Sling Handbook is an absolute "must" for plant and safety engineers, purchasing agents and shop foremen—everyone who uses, buys, or supervises work with slings. We distributed more than 85,000 copies of the first edition, and the demand for this new, completely revised edition is going to be even greater.

Featured in our new Sling Handbook is the new Tuffy streamlined metal ferrule pressed on the tucked eye splice. This new Tuffy Sling Handbook lists nearly a dozen new fittings—sling bridles, slip-on thimbles, safety hooks, sling saddles, horizontal clamps, and many others. It tells you all about the enlarged line of factory-fitted Tuffy Slings. It contains a complete rigger's manual, proof-tested rated working loads and specifications on all Tuffy Slings.



### SEE DISTRIBUTOR FOR TUFFY SLINGS AND HOIST LINES

He can save you the time and trouble of carrying a full inventory. Tell him your normal requirements and he will keep matching stock of Tuffy Slings and Tuffy Hoist lines for fast delivery. Your Tuffy distributor can supply longer sling service life—bigger value for your money.

### New Tuffy Ferrule Exclusive Feature at No Extra Cost

Union Wire Rope developed the new Tuffy Sling ferrule to make Tuffy Slings easier, safer, and faster to handle. It took extensive research and proof testing to improve upon the full length hand splicing of Tuffy Sling eyes which have withstood the test of time. Now equal or greater strength is attained with ferrule splice and the hazards of protruding tuck terminals are eliminated. Yet it costs you nothing extra for this exclusive feature.

**It's Yours Free**, but our supply is going fast. So mail the coupon now for your copy of this valuable Tuffy Sling Handbook.

### Strength of Tuffy Fabric Now Equaled in Splice

First, the 9-part machine braided Tuffy Fabric of the sling eye is tuck-spliced together. Then the new Tuffy steel ferrule is slipped around the splice. Under terrific pressure, the metal of the ferrule (see cross section of splice and ferrule above) virtually flows into the interstices of the machine braided fabric. Every Tuffy sling is given strength at the eye splice equal to the superior strength of the machine braided fabric. The swaging of the ferrule at the ends makes them smooth, so they can't injure hands or catch on loads.



Mail Coupon for  
FREE Copy of New  
**Tuffy Sling**  
HANDBOOK



**union Wire Rope corporation**

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.  
2282 Manchester Avenue, Kansas City 26, Missouri

MY NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
COMPANY NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

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FEBRUARY, 1956

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# BEARING TIPS by McGill

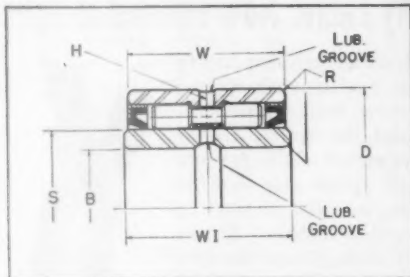
## CAGELESS BEARING CORRECTS SKEWING

Guiderol Bearings carry greater loads in smaller spaces because they have no space wasting cages. A full complement of center grooved rollers extends the width of the race for maximum load support and a center guide rail avoids roller skewing that can bind a bearing under some loads. MT and CT series interchange dimensionally with ordinary needle bearings and cylindrical roller bearings.



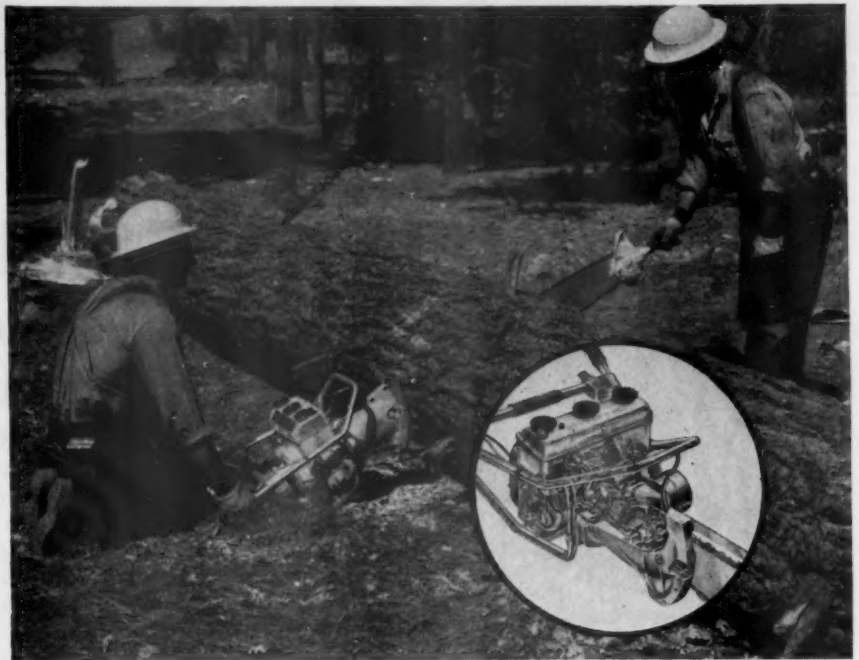
## First Sealed Full Type Roller Bearing Series

The SG series Guiderol bearing provides low-cost and flexible sealing where ordinary needle-type bearings with auxiliary seals have been too cumbersome and expensive. Interchangeable with the standard Guiderol bearing, the new SG series provides five sealing combinations.



## 140 Pages of Bearing Facts

Write for your copy of Catalog No. 52, a revised 140-page Bearing Selection Guide. It contains vital product information and 30 pages of engineering data.



## GUIDEROL® BEARING CARRIES GREATER LOAD IN SMALL SPACE FOR McCULLOCH CHAIN SAWS



**Bearings installed in 1944  
still in use.**

Load-carrying capacity in minimum space is given as the reason for using McGill Guiderol bearings on the heavy-duty loader made by the Farmhand Company. Four bearings support the shafts of the gear pump that furnishes hydraulic power to the loader. McGill bearings have been used by Farmhand since 1944 and virtually all of the loaders with the original bearings are still in use.

## Assembly ease cited as an extra benefit

Rugged use in the field dictates rugged construction at the factory for McCulloch Motors Corporation gasoline engine chain saw units. The one-man and two-man chain saws must be light and compact but sturdy enough to operate at full capacity all day long.

Since switching to a McGill Guiderol Bearing as support for the crankshaft, McCulloch, like many machine builders, has proved that the Guiderol bearing provides the desired greater load capacity in small space and outlasts former units with minimum maintenance—important under rugged chain saw field conditions.

A bonus benefit is the ease of installation of the Guiderol bearing—with open ends and no end shoulders. Assembly is a simpler operation.

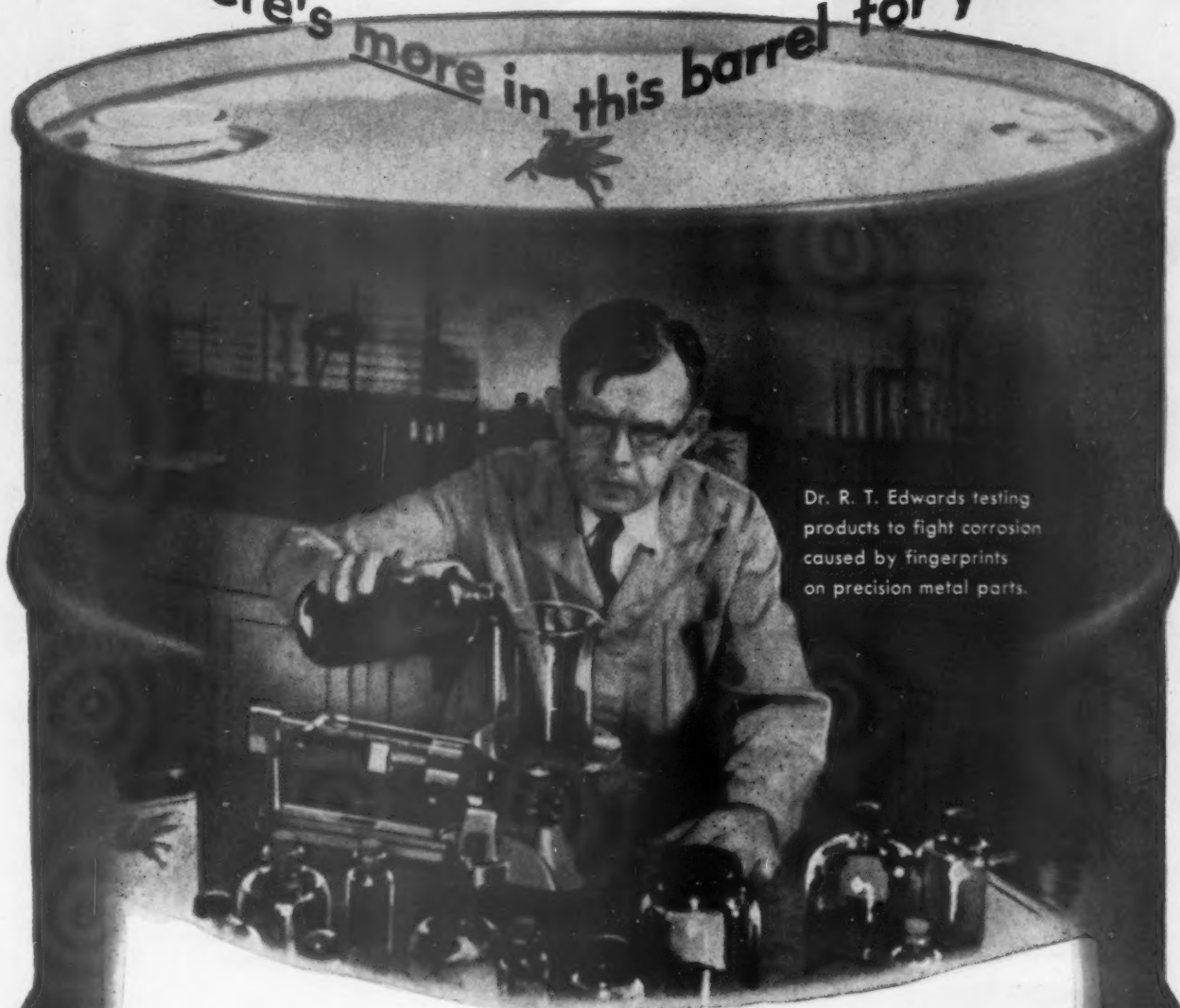
Insure performance with **McGILL®**

**MULTIROL® GUIDEROL® CAMROL®**  
Full Type Roller Bearings

**McGILL MANUFACTURING COMPANY, INC., 400 N. LAFAYETTE ST., VALPARAISO, INDIANA**

For More Information Circle No. 192 on Inquiry Card—Page 17

There's *more* in this barrel for you...



Dr. R. T. Edwards testing products to fight corrosion caused by fingerprints on precision metal parts.

## MORE CONTINUOUS RESEARCH to help you improve production and cut costs!

When you specify "Socony Mobil," you get petroleum products backed by *more continuous research* than those of any other oil company! This means products which are *continually improved* in quality and performance—*new* products when needed. Equally important . . . these complete research facilities are available to *you*—to help improve your production and lower your unit costs.

Socony Mobil products are also backed by *more* field engineers serving industry . . . *more* services for analyzing petroleum products in use . . . *more* on-the-job training of your personnel in correct product application . . . *more* approvals from machine builders . . . *more* practical experience—90 years!

Always specify Socony Mobil. There's *more* in every barrel for you!

SPECIFY  
**SOCONY MOBIL**



FIRST STEP  
IN CUTTING COSTS

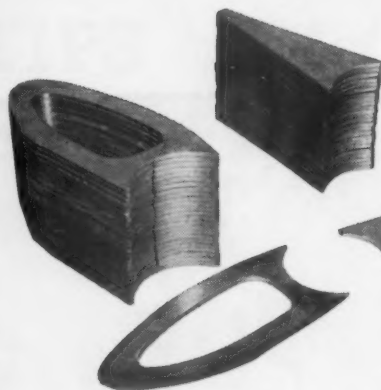
SOCONY MOBIL OIL CO., INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY  
GENERAL PETROLEUM CORPORATION

LUBRICANTS • FUELS • CUTTING FLUIDS • WAXES • SOLVENTS • PLASTICIZERS • PETROCHEMICALS

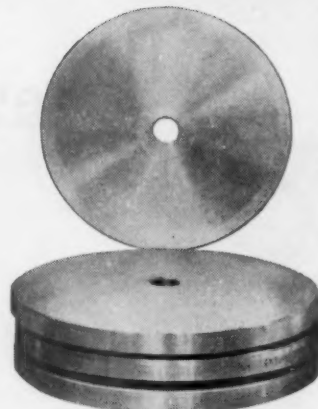




Blank size:  $\frac{3}{8}$ " thick x  $16\frac{1}{2}$ " x  $23\frac{1}{2}$ "



Blank size:  $\frac{3}{8}$ " thick x 9" x 31"



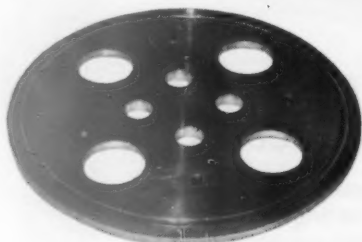
Blank size: 5" thick x 78" OD



Blank size: 4" thick x  $7\frac{3}{4}$ " x  $71\frac{3}{4}$ ".  
Illustrations show before and after machining.



All the products illustrated here were flame cut, sawed, abrasive cut, sheared or machined from stainless steel plate.



Blank size: 2" thick x 60" OD

## Stainless steel plate produced to your specifications for quick delivery

Confidence in Carlson service has made G.O. Carlson, Inc. the country's leading specialist in stainless steel plate. As we grew to this position in the industry, we learned and developed new methods of working stainless plate.

What does this mean to you?

It means you can buy for quick delivery exactly what you need in stainless steel plate—sheared, sawed, flame cut, abrasive cut, or machined. And this is true whether the job is a "toughy" or "run of the mill"!

When you need stainless steel plates—special patterns like these or plain rectangles—you'd better try Carlson service, where experience pays off.

write for CARLSON'S WEEKLY STOCK LISTS . . .  
YOUR GUIDE TO WHAT'S AVAILABLE  
IN QUALITY STAINLESS STEEL

*Stainless Steels Exclusively*  
**G.O. CARLSON, INC.**  
THORNDALE, PENNSYLVANIA

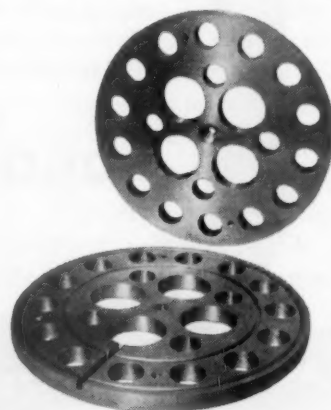
Plates • Plate Products • Forgings • Bars • Sheets (No. 1 Finish)  
District Sales Offices in Principal Cities



Blank size:  $3\frac{1}{8}$ " thick x  $106\frac{1}{2}$ " OD



Blank size:  $\frac{1}{4}$ " thick x 75" x 88"



Blank size:  $1\frac{1}{2}$ " thick x 26" OD



**Nary a slip 'twixt the job and the disc**

PHOTOGRAPHED AT MORRISON STEEL PRODUCTS, INC.

One look at this new Resin Sander Disc by CARBORUNDUM tells you it's no sissy. One trial in your shop *proves* how tough it is. It bites into metal fast...cuts free and cool...stays sharp from start to finish. The rugged all-fibre backing, plus a resin bond with

greater holding power, means far more work per disc. The edge holds shape longer, even on your most severe grinding jobs. Resin Sander Discs are designed for both snagging and surfacing operations, come in types and sizes to fit all Disc Sanders.

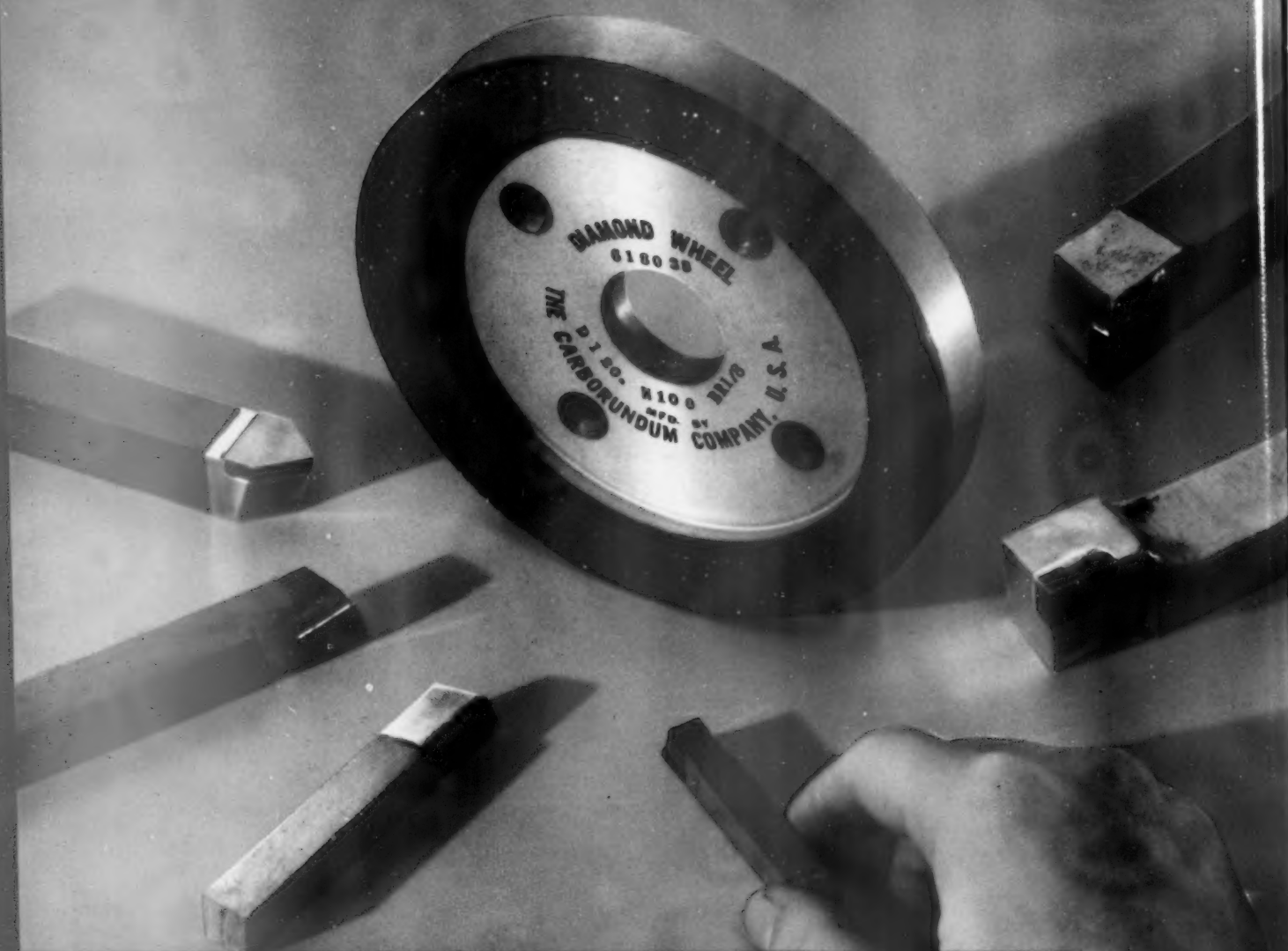
For a free demonstration of this new cost-cutter, call your CARBORUNDUM Distributor or salesman today. Or write The Carborundum Company, Niagara Falls, New York. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ontario.

Through application "know-how" and product quality

# CARBORUNDUM

REGISTERED TRADE MARK

continually puts more **sense** in your abrasive **dollar**



## Diamonds are a tool's best friend

Grinding keen edges on cemented carbide cutting tools can be tricky. The material is extremely hard and brittle...easily harmed by excessive heat. CARBORUNDUM's new B-7 Resinoid Bond Diamond Wheels grind unusually free and cool—re-

duce the danger of checking or cracking the carbide. Less pressure is needed to achieve accurate sizing to close tolerances, and to produce razor-sharp edges. And CARBORUNDUM's Diamond Wheels hold form better, last longer...deliver greatly increased

tool life. Ask your CARBORUNDUM Distributor or salesman for free copy of booklet, "Grinding Cemented Carbides," or write The Carborundum Company, Niagara Falls, N. Y. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ont.

Through product quality and application "know-how"

# CARBORUNDUM

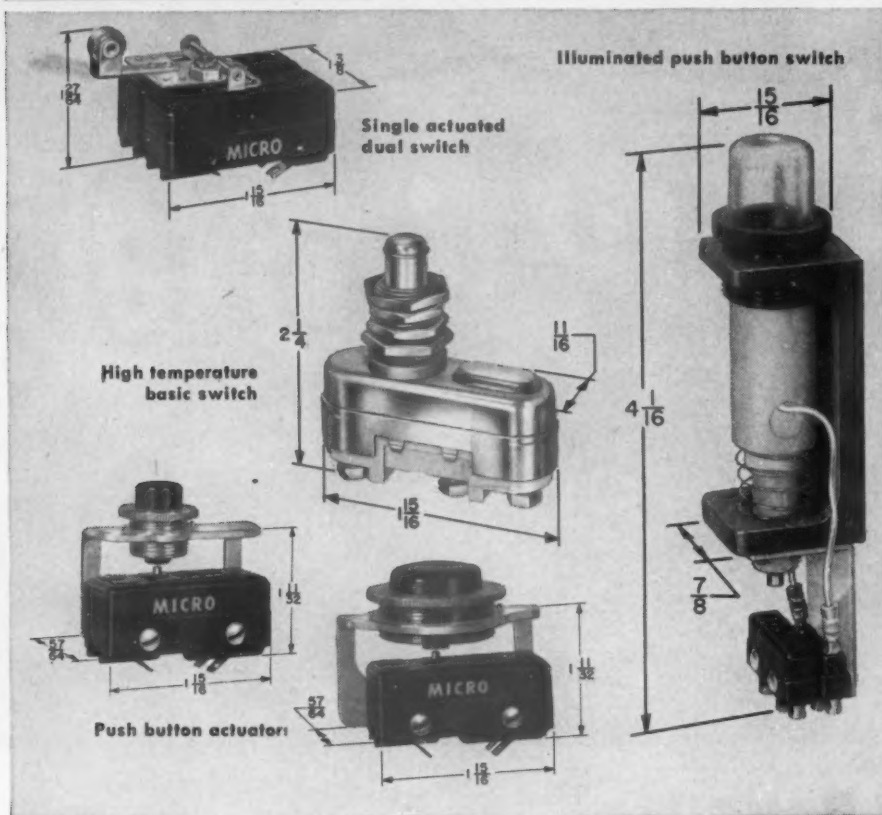
REGISTERED TRADE MARK

continually puts more **sense** in your abrasive **dollar**



# MICRO precision switches

...THEIR USE IS A PRINCIPLE OF GOOD DESIGN



## A continuous flow of Precision Switch developments anticipates designers' needs

Function of MICRO SWITCH Engineering, both at the factory and in the field, is to supply the precision switch which most exactly meets the design requirement.

Shown here are just a few recent MICRO SWITCH developments that designers have found useful in a wide variety of applications. Write to any branch office or to Freeport, Illinois for more detailed information.

**The Single Actuated Dual Switch** consists of two basic switching units operated by a roller lever actuator. The operating point of one of the basic switches is field adjustable so either simultaneous actuation or a definite sequence of operations is possible.

**The Illuminated Push Button Switch** is a low force, high pre-travel switch with an indicating light as an integral part of the push button. The high pre-travel permits movement of the button before the contacts snap over. This switch is designed for use in electronic, aircraft, mobile, marine, railway and other low voltage a-c or d-c applications.

**The High Temperature Basic Switch** is a precision snap-action switch which will operate satisfactorily in a temperature range of from -50° to

plus 1000° F. It is useful in such industrial applications as found in distilleries, foundries, vulcanizing plants and other industries which require high temperature components.

**Push Button Actuators** are of a new series available to designers of electrical computers and other types of commercial and industrial devices which require reliable panel-mounted, manually-operated switches. They are available with 1/2" or 1" buttons and combine attractive appearance and extremely long life with an exceptionally good actuation "feel".

Manufacture of precision switches is not a side line with MICRO SWITCH. It is our entire business. That is why industrial designers come to us more and more each year with switch problems of amazingly diverse types. MICRO SWITCH branches are conveniently located to serve you.

MICRO SWITCH Engineering Service is available to help you select the exact switch to meet your design problem. Call the MICRO SWITCH branch nearest you.

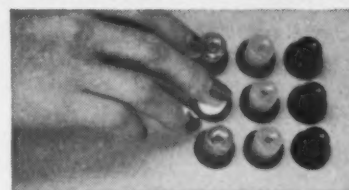
## MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS



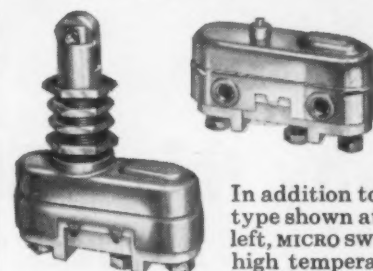
For More Information Circle No. 196 on Inquiry Card—Page 17



### Illuminated Push Button Switches allow mounting on one inch centers

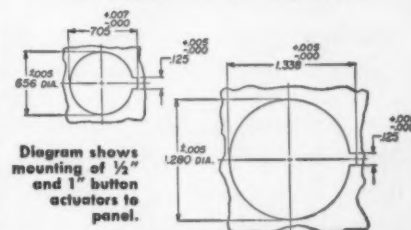
MICRO SWITCH Illuminated Push Button Switches are outstanding for ease of operation, high pre-travel, compact design (which permits mounting on one inch centers), smooth appearance and easy-to-see pilot light. Switches are provided with sockets for a single contact miniature bayonet lamp. Removable translucent push buttons are available in clear, red, or frosted white.

### High Temperature Switch comes in three actuator types

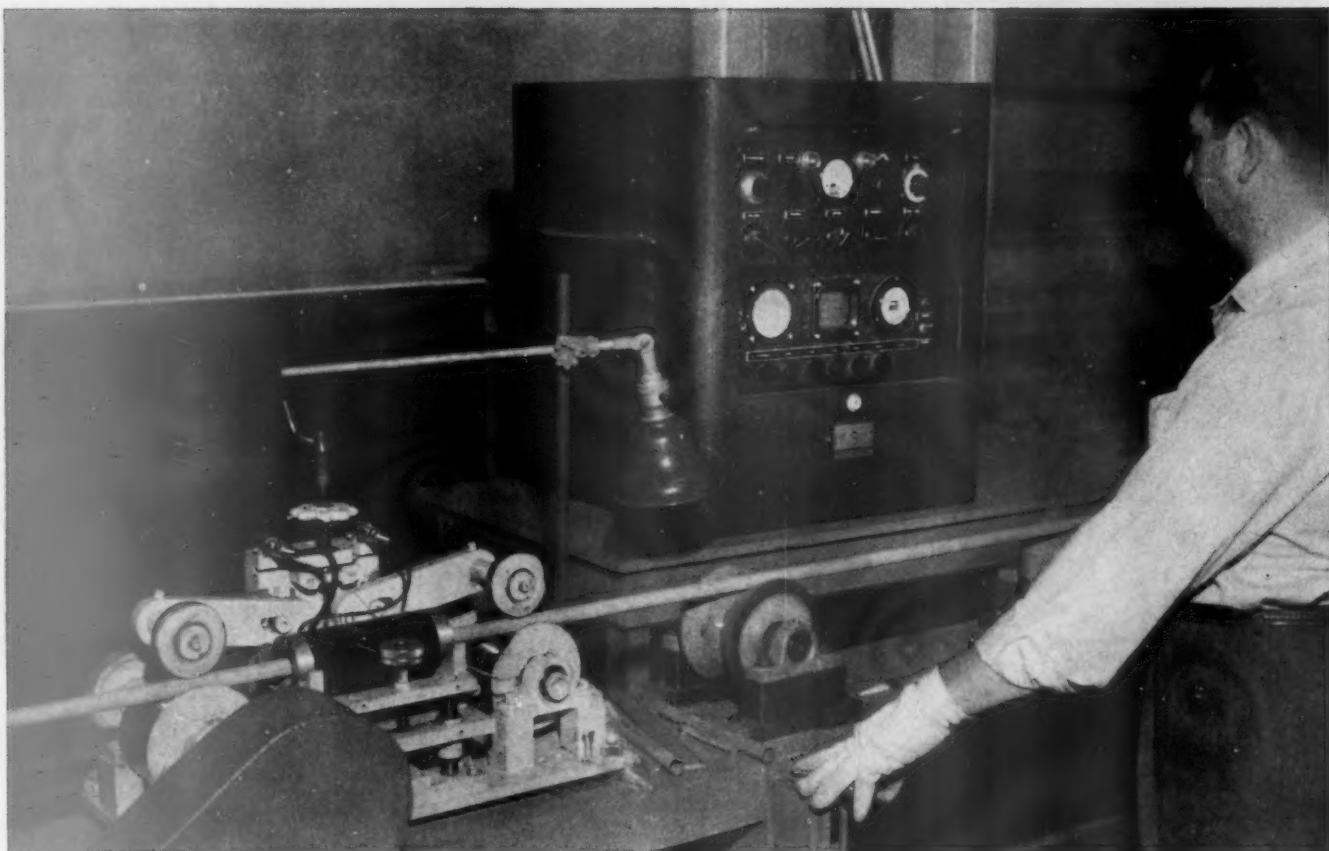


In addition to the type shown at the left, MICRO SWITCH high temperature switches are also available with pin plunger actuators for use where space is limited and small operation motion is available and roller plunger actuators for applications where cam or slide action is required.

### How Push Button Actuators are mounted to a panel



Knurled bushing assembly is inserted through the panel and threaded into the switch mounting bracket. The mounting bracket in turn is keyed to the panel, using Mounting details A or B.



## why this NEW "EYE"

ASSURES YOU HIGHEST POSSIBLE DEGREE OF

## PERFECTION IN *Carpenter* STAINLESS TUBING !

Now, minute tubing defects invisible to the human eye . . . even those not detectable by any other production non-destructive testing method, will not escape the penetrating eye of a new non-destructive test in the Carpenter mill.

It's the most exacting and thorough quality control device ever developed for testing austenitic stainless tubing during production. Flaws that don't show up in hydrostatic tests are brought to light by this new testing device as it critically scans the entire I.D. and O.D. periphery of the tubing. It also detects variations in composition, gauge, sub-surface and surface conditions at production speeds.

What does this newest Carpenter advance mean to you? It means that Carpenter now assures you of better-than-ever quality . . . the highest degree of perfection possible in stainless tubing. It means added assurance for you that Carpenter Stainless Tubing, more than ever, is your best buy for life-long trouble-free service.

Ask your Carpenter Representative or local Carpenter Distributor for more details about this new quality control measure. Specify Non-Destructive Test on your inquiries and orders.

MEMBER



**The Carpenter Steel Company,  
Alloy Tube Division, Union, N. J.**

Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.—"CARSTEELCO"




## Stainless Tubing & Pipe

For More Information Circle No. 197 on Inquiry Card—Page 17



**Versatile? Yes!** These are Rheem steel pails. They are available in 1-gallon to 15-gallon sizes; plain, colored or lithographed; lined or unlined; double head or crimp lug type covers. To the many manufacturers who want clean steel pails, Rheem is the answer. You see, Rheem is the world's largest manufacturer of steel containers, and their experience is your assurance that your products are well protected—always. Rheem pail linings are bonded directly to the steel and oven baked by a special process to stay on. Use the coupon to find out more about sending your products to market, first class—in Rheem steel pails.

YOU CAN RELY ON



MANUFACTURING COMPANY

World's Largest Manufacturer of Steel Shipping Containers

LINDEN, N. J. AND SPARROWS POINT, MD., RICHMOND AND SOUTH  
GATE, CALIF., HOUSTON, CHICAGO, NEW YORK, NEW ORLEANS

**RHEEM MANUFACTURING COMPANY**

7600 S. Kedzie Ave., Chicago, Illinois

Please send me detailed information on Rheem Steel Pails.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

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CITY \_\_\_\_\_ STATE \_\_\_\_\_

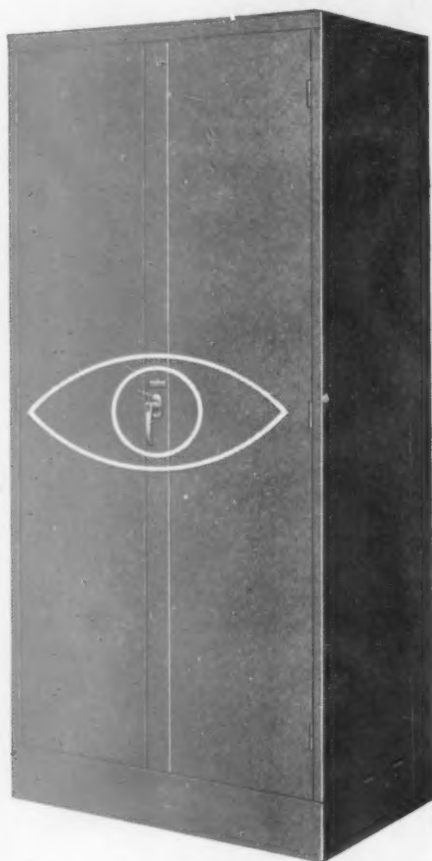
P-2



# BORROUGHS DOES IT AGAIN!

## "CYCLOPS" Swing-Door Storage Cabinet

takes the eye at a glance... makes nationwide hit!



Baked-on enamel finish... choice of 5 colors

**1 handle  
does the  
work of 2**



Yes, from coast to coast the Borroughs "Cyclops" cabinet has been acclaimed the best looking and best-value swing-door storage cabinet on the market. It's 'way out in front! It's another Borroughs winner. Go!... visit your dealer today and see this champion for yourself. Open and close its smooth, safe-like swinging doors. The price?... well, you'll be surprised... costs less than you would expect to pay for such a fine quality product.



PATENT APPLIED FOR

**3 "Cyclops" models to choose from**  
All 3 styles are convertible, with interchangeable interior parts.



**BORROUGHS  
storage  
cabinet**

No. 61801—36"x78"x18"  
No. 62401—36"x78"x24"  
Stores supplies from view  
in an efficient, neat and  
clean manner—plus genuine security.



**BORROUGHS  
combination  
cabinet**

No. 61803—36"x78"x18"  
No. 62403—36"x78"x24"  
Serves the dual purpose  
of wardrobe and supply  
cabinet, with complete  
security and protection  
to supplies and clothing.



**BORROUGHS  
wardrobe  
cabinet**

No. 61802—36"x78"x18"  
No. 62402—36"x78"x24"  
Holds 12 or more heavy  
coats without crowding.  
Clothes hang full length  
and remain clean.

## BORROUGHS MANUFACTURING COMPANY

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3014 NORTH BURDICK **amp** KALAMAZOO, MICHIGAN

**amp** Plants and other Subsidiaries: (American Metal Products Co.—Detroit, Michigan—Union City, Tennessee) (AllianceWare, Inc.—Alliance, Ohio—Kilgore, Texas—Colton, California) (General Spring Products, Ltd.—Kitchener, Ontario, Canada) (Tube Reducing Corp.—Wallington, New Jersey)

Manufacturers of quality products for automobiles, trucks, aircraft, offices, factories, warehouses, and homes.

For More Information Circle No. 199 on Inquiry Card—Page 17



## Clean sweep on cutting costs



MAINTENANCE  
BRUSHES

POWER BRUSHES

PAINT BRUSHES

**N**AME any job for industrial brushes—painting, cleaning, power brushing—and you'll find the name OSBORN on a brush to do that job.

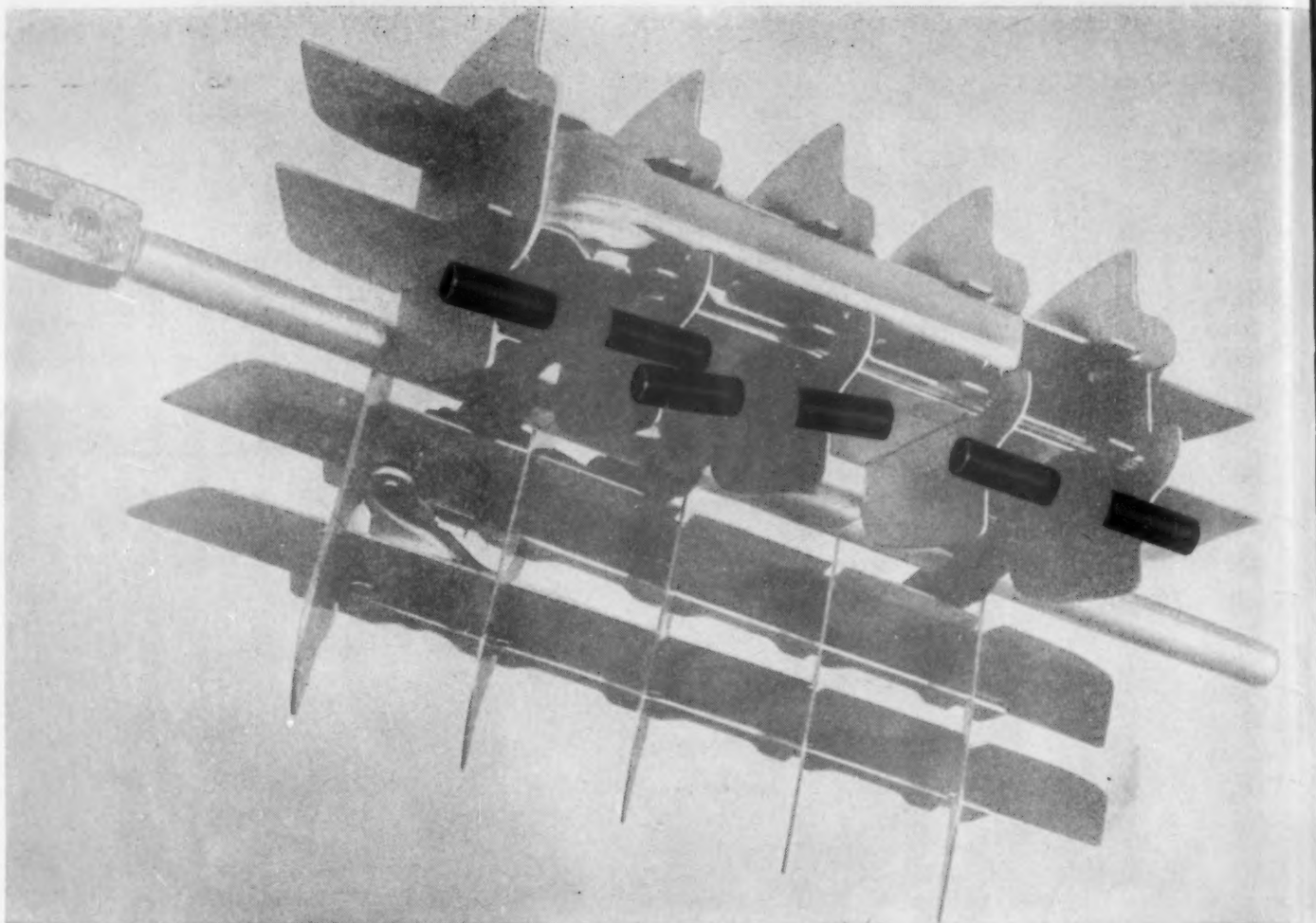
Every Osborn brush is designed to do a specific job better and faster . . . ruggedly built to last longer. And, ordering all your industrial brushes from *one, full-line source* will save you valuable manhours in purchasing.

Next time—and *every time*—you order brushes, specify . . . OSBORN!  
*The Osborn Manufacturing Company, Dept. U-25, 5401 Hamilton Avenue,  
Cleveland 14, Ohio.*

# Osborn Brushes



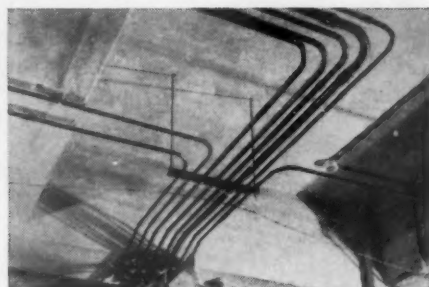
BRUSHING METHODS • POWER, PAINT AND MAINTENANCE BRUSHES  
BRUSHING MACHINES • FOUNDRY MOLDING MACHINES  
For More Information Circle No. 200 on Inquiry Card—Page 17



**CORROSIVE HEADACHES RELIEVED IN ASPIRIN PLANT** with Republic ENDURO Stainless Steel. Because the chemicals, salicylic acid and acetic anhydride used in making aspirin powder attack ordinary metals, ENDURO Stainless Steel is used here for all equipment coming in contact with the powder during processing. If your equipment must resist corrosion and protect product quality and color, then specify Republic ENDURO Stainless Steel.



**PERIODIC AND COSTLY PIPE REPLACEMENTS REDUCED** with Republic's new plastic pipe—Semi-Rigid Kralastic. Extremely tough, it will absorb punishment without breaking or shattering and is highly resistant to most corrosive liquids and gases. Kralastic is ideally suited for both waste and process lines in the food processing and chemical industries. It is non-toxic. It's easy to handle, easy to join. Available in a wide range of working pressures.



**DOUBLE PROTECTION FOR ELECTRICAL RACEWAYS** in extremely corrosive atmospheres is provided by the tough, polyethylene coating over the galvanized finish of Republic Dekorons-Coated Electrical Metallic Tubing. Installation is simple. Moisture-tight joints are easily made, using threadless connectors and couplings. Joints are sealed with tape. Republic Dekorons-Coated E.M.T. reduces replacement costs. Cuts down-time of costly equipment. It costs less because it lasts longer.

# REPUBLIC

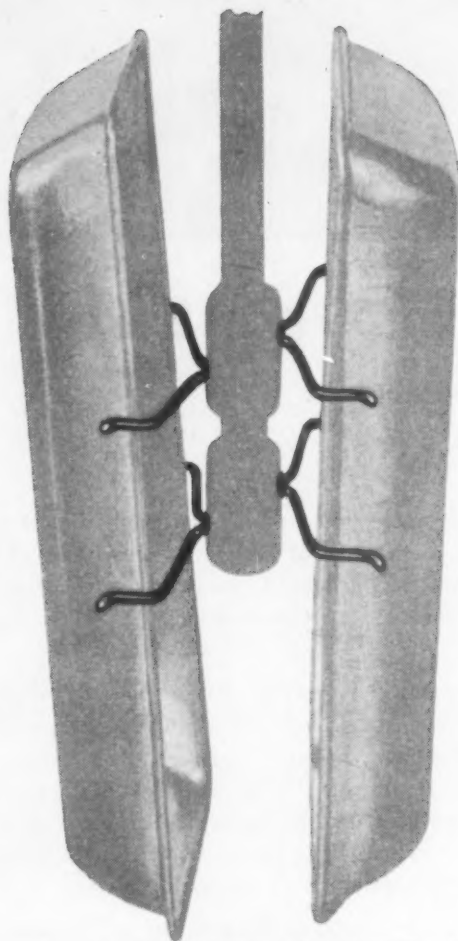


*World's Widest Range of Standard Steels*



# REPUBLIC TITANIUM

displaces aluminum and increases anodizing rack life 100 times



Experimental anodizing racks utilizing Titanium have proved so successful that plans are being made for quantity production. New design will take full advantage of the properties of Titanium for the entire assembly.

## STEEL

*and Steel Products*

Up to now, aluminum has been considered to be the most satisfactory rack material for the anodizing of ice trays and grids.

But, its use has been expensive and time consuming. For example, prior to each anodizing cycle a stripping operation is required to remove the anodic film formed for electrical contact on the previous cycle. And, during each anodizing and stripping cycle a considerable amount of aluminum is dissolved from the racks.

Recently one manufacturer of ice trays and grids switched to commercially pure Republic Titanium for use in anodizing racks. Titanium has proved to be an excellent rack material. It not only resists the chemical attack of the cleaning, etching, brightening and anodizing solutions, but also eliminates the need for the stripping operation. The thin, adherent oxide formed will conduct electricity and, therefore, does not have to be stripped off after each anodizing cycle.

While the initial cost of Titanium is higher than that of the former material, elimination of the stripping operation and increased rack life more than compensates for the increase in cost. The manufacturer's laboratory tests indicate that rack life will be increased more than 100 times.

Does this give you an idea for chemical equipment or for low-maintenance metal parts that must stand up to the most severe service? Then talk it over with Republic. You'll get complete information from the experienced leaders in corrosion-resistant metals.

### REPUBLIC STEEL CORPORATION

3126 East 45th Street, Cleveland 27, Ohio

Please send more information on these Republic products:

- ☐ Titanium & Titanium Alloys  
☐ ENDURO® Stainless Steel    ☐ Semi-Rigid Kralastic  
☐ Dekoron®-Coated E. M. T.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

C-1087

Checking contact and backlash of a production gear set at the De Laval Steam Turbine Company.

## How to Save in Selecting Worm Gear Sets

By JAMES E. GUTZWILLER, Assistant Chief Engineer, Worm Gearing Department

*De Laval Steam Turbine Company*

Worm gear sets have four major advantages: compactness, easy maintenance, interchangeable components, and high shock-load capacity. The user can realize maximum benefits from these advantages and reduce costs by acquiring some background information on the characteristics of worm gearing. Here are a few points to consider.

**Standard Components.** Find out what standard components are available before proceeding with design. De Laval stock parts include worms, gears, bearing housings and end covers. By selecting from these, the user may sharply reduce the cost of the finished gear set.



**HOBGING MACHINE**—Tangential feed gives uniform teeth of precise dimensions. This is accepted as the most satisfactory method for producing close tolerance worm gearing.

The hob, for example, must match the pitch diameter, pitch, lead and tooth form of the worm. Designers who are familiar with standard hobs can design a worm accordingly and save the expense and delay of obtaining a special hob.

**A Note on Assembly.** The worm, having threads which are continuous in form, is not critical in regard to end-wise location. The gear, however, must be precisely positioned in an axial position. Accumulation of tolerances on the dimensions of housings, shafts, bearings and gears makes it impractical, in most cases, to control the location of the gear by accuracy of machining alone.

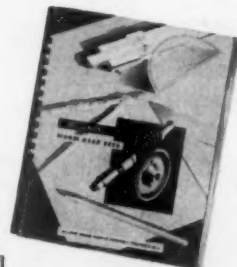
**Shrouding.** Heat developed in the gearing will be more freely dissipated through a comparatively open housing. Close shrouding is permissible only when intermittent operation is the rule.

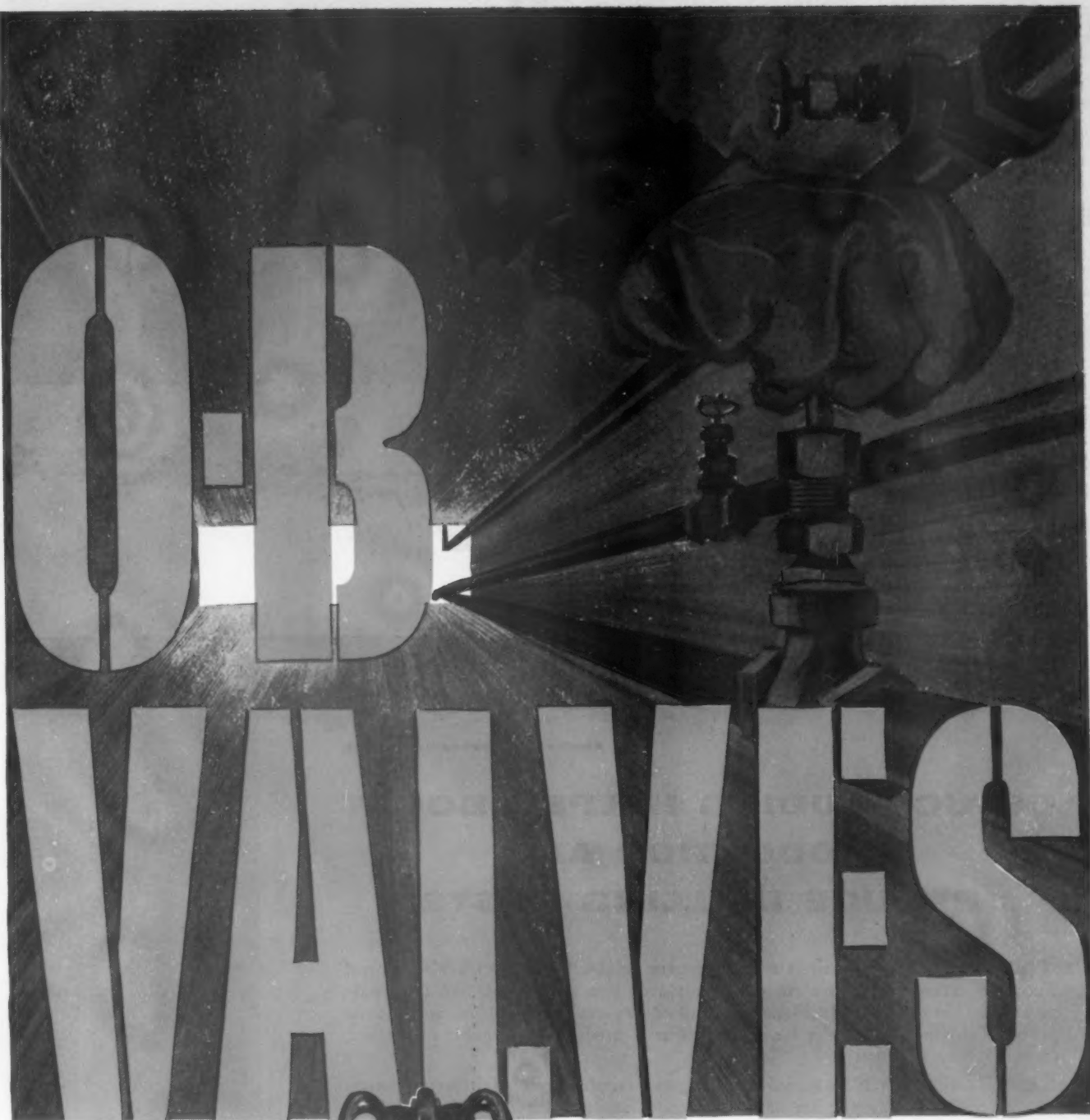
### *Helpful Manual on Worm Gear Sets*

For information on how to select, install and maintain worm gear sets, send for this helpful manual.

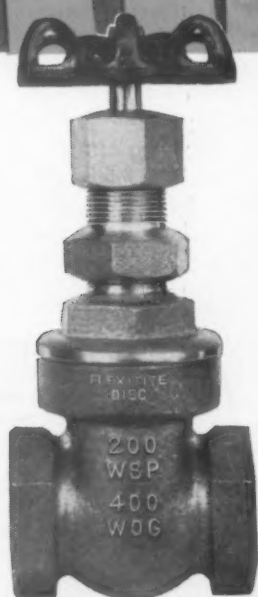
It contains useful data on gearing and includes examples of specific selection problems with their solutions. Write on your business letterhead to the De Laval

Steam Turbine Company, 807 Nottingham Way, Trenton 2, N. J. for Catalog 5000.





**Made  
for the tough  
spots . . .**



O-B bronze valves are built for severe service by a manufacturer who has been making quality bronze valves since 1888. If you're having valve troubles, why not try O-B valves? Ask your distributor about them.

**(B) OHIO BRASS** MANSFIELD, OHIO, U. S. A.

4616-V





Kennametal tools working in a coal mine.

## OSTUCO TUBING HELPED BOOST PRODUCTION AND REDUCE DRILLING COSTS

**The Problem:** Various mining augers originally used with Kennametal Tungsten carbide bits were frequently replaced due to bending and twisting—particularly in hard, fast drilling. This resulted in excessive downtime, and limited potential drilling life of the Kennametal bits . . . which are capable of drilling from 4,500 to 12,000 feet.

**The Solution:** New Kennametal augers, manufactured from OSTUCO Seamless Steel Tubing, last the life of several bits. These tubular augers have rigidity to stand the high pressure of fast, long-hole drilling, yet are light weight for easier handling underground. Lightness, rigidity and long wear are especially important in drilling holes of 100 feet depths during mining of anthracite coal and gypsum.

Discuss your particular problems with an OSTUCO Tubing Engineer. Then take advantage of OSTUCO's convenient *Single-Source* Service and fill all your tubing needs on one order. Write or call your nearest OSTUCO Sales Office, or write OSTUCO, Shelby, Ohio.



# OSTUCO TUBING

SEAMLESS AND ELECTRIC WELDED STEEL TUBING  
—Fabricating and Forging

### OHIO SEAMLESS TUBE DIVISION

of Copperweld Steel Company • SHELBY, OHIO

Birthplace of the Seamless Steel Tube Industry in America

SALES OFFICES: BIRMINGHAM • CHARLOTTE • CHICAGO (Oak Park)

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CANADA, RAILWAY & POWER ENGR. CORP., LTD.

EXPORT: COPPERWELD STEEL INTERNATIONAL COMPANY

117 Liberty Street, New York 6, New York

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For More Information Circle No. 204 on Inquiry Card—Page 17→  
PURCHASING



**FOR SCUFF-RESISTANT BEAUTY.** This Sunroc water cooler has, as standard equipment, a Stainless Steel kick plate for protection against scuffing and corrosion when floors are mopped. The deep drawn top is also made from Stainless. It's bright and inviting, and easy to clean.



**FOR LONG, HARD SERVICE.** Some of the Stainless Steel tubes in this bundle are 20 years old, despite the fact that they have been in continual service in a thermal cracking unit at a major southwestern oil refinery. Even though some of them have been lengthened by heliarc welding, they still retain their ability to handle corrosive products.

# NOTHING *can equal* *Stainless Steel*



**FOR SANITATION.** This is a Stainless Steel rotary washer at a baby food plant of Gerber Products Company. Stainless Steel was used because of its great corrosion resistance, because it will not contaminate the food products, because it is so very easy to clean. Gerber's uses a lot of Stainless Steel processing equipment—including peelers, bins, steamers, holding tanks and filling machines.

• No other design material can match Stainless Steel in its *combination* of desirable properties: corrosion resistance, strength and hardness, beauty, cleanability and easy fabrication. When seeking a source of supply, remember that United States Steel offers the widest range of types, finishes and sizes available in the United States.

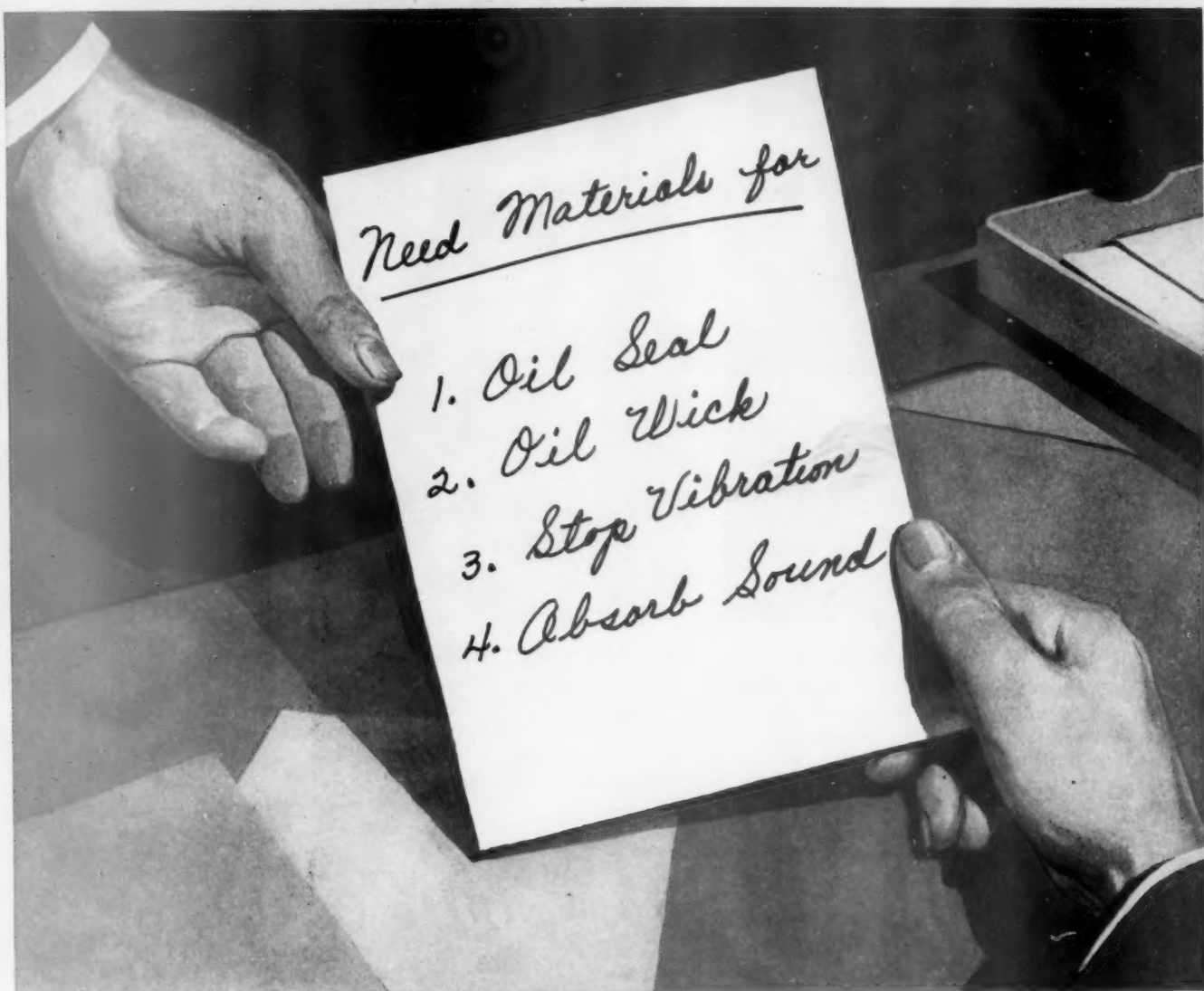
UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND  
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.  
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

## USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS  
PIPE • TUBES • WIRE • SPECIAL SECTIONS



UNITED STATES STEEL



*for all four*  
***Your best answer is***

**Felt**

**WESTERN**  
4021-4139 Ogden Ave  
Chicago 23, Illinois  
Branches in all Principal Cities

*Felt*



**WORKS**

**MANUFACTURERS AND CUTTERS OF WOOL FELT**

For More Information Circle No. 205 on Inquiry Card—Page 17

Western Felts can be made as soft as virgin wool or as hard as bone—or any desired specifications in between. But always, their live fibers hold their shape. They never ravel or fray . . . resist wear, age, and weather.

For over 56 years Western Felt has manufactured and cut specification felts for all industries. Whatever your problem, our experience can be helpful. Let our engineers investigate that possibility for you.



# New Lightweight **SKIL** Sander For Production Plants Gives 30% More Power

SKIL's new Disc Sander, Model 851, is giving industry important help with finishing problems. Here is a tool that is lightweight and easy-to-handle . . . with extra power to meet bigger de-

mands. In rugged on-the-job service, the new 851 proves that it can deliver more work on a variety of tasks . . . with far less maintenance than any comparable sander.



## These Are Some Of The Other Exclusive Features Offered By SKIL:

- **FASTER WORKING!** 30% more power and increased speed; gets maximum operating efficiency from all accessories.
- **EASIER HANDLING!** New compact design results in shorter length and lighter weight. Front and rear handles placed for best control.
- **LOWER MAINTENANCE!** Engineered for longer life. Large inspection plate permits easy cleaning and checking.
- **QUICK CHANGEOVER** of accessories permits easy switching from job to job including sanding, grinding, buffing, wire brushing.

**FREE!** Let your SKIL Distributor show you in a convincing demonstration and **FREE** trial . . . that "SKIL is the ANSWER" to your metal finishing bottle-necks! Write for information and literature.

## Other Big Features Make SKIL Your Best Buy In Disc Sanders!

- **PRECISION-CUT GEARS** . . . mounted in rubber for smoother operation!
- **TOOL REST** . . . for added convenience!
- **CORD PROTECTOR** . . . for greater safety!
- **TRIGGER SWITCH** . . . for greater comfort in use!
- **SPINDLE LOCK** . . . makes accessory changes far easier!





## MAKE USE OF YOUR AIR-RIGHTS



*Open space under your warehouse roof may be clear profit...if you can utilize it by stacking boxes taller. But, before you do, be sure your boxes will stand straight and strong under the increased load. Gaylord containers have this valuable "stack-ability" because they are precision built of the finest quality materials.*

*For information on containers to help you make full use of all your storage space, call your nearby Gaylord office.*

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

**GAYLORD CONTAINER CORPORATION ★ ST. LOUIS**

DIVISION OF CROWN ZELLERBACH CORPORATION

## Too Much Negotiation?

**I**T SEEMS like only yesterday that the Armed Services procurement regulations were revised to permit the use of negotiated contracts, in place of requiring strict adherence to the traditional system of advertised bid and award. At the time, it was hailed as a tremendous advance in governmental purchasing policy, in line with accepted commercial practice. It was more than that. It was stark necessity, for the old system had bogged down completely under present conditions, and military buyers were simply unable to place contracts and procure needed products within the strait-jacket of mandatory advertised bids.

Now legislators find the proportion of negotiated defense contracts (close to 90% in 1953-1955) to be "shocking", and make an offhand, completely unsupported declaration that a minimum saving of 10% could be made by "letting American labor and industry get into competition, as Congress intended." It may be that some departments have gone overboard for negotiation, in their new freedom of action. We believe it only fair to assume that it has been done in the interest—and with the result—of better buying. The sweeping condemnation of negotiated buying is unwarranted.

Negotiation is not inconsistent with competition—unless, as one directive insists, prices are not to be discussed except with the low bidder. If prices are to be discussed at all, it should be done with various potential suppliers at the outset of the transaction. We are especially amazed to find that in some quarters, negotiation bears the connotation of under-the-table dealing.

Negotiation, as private industry has found, is one of the most effective means of enlisting the cooperation and know-how of suppliers in achieving manufacturing improvements and lowered costs.

Many products do not lend themselves to purchase by advertised bids—as when initial specifications are not firm, where specialized technical skills and facilities are the prime factor in a sound award, and when subsequent engineering changes render initial bids meaningless.

The Air Force, which is cited as the "worst offender", is particularly subject to these limitations. Yet contractors on these programs are under continuing and effective scrutiny by procurement officers and are required to show competition in their own purchasing of materials and components.

Defense construction contracts, where drawings and specifications are available, are predominantly (83.5%) placed on advertised bids. The system also prevails in GSA purchasing, which deals largely in standard shelf items where bids can be intelligently employed.

The sound approach to defense buying, as in all buying, is not to condemn and scrap negotiation, but to use the best available method appropriate to the situation, and to audit the activities for justification of the award and the

price. That's the way it's done in private, profitable enterprise, which has shown itself at least equal to government in its awareness and concern over the value of a dollar.

*Stuart F. Henrity*







Policy always exists in an organization, if only through custom, without the benefit of adequate thought and planning. Good policy rarely develops so casually, and improving policy—in purchasing, for example—may involve **Educating the Boss** on the proper principles to be established as a guide to action. There's no pat formula for putting this across, but the tested formulas for effective planning, selling, training, thinking, and control can be applied. An educator with a practical knowledge of purchasing puts these together for you in the article on page 71.

The enthusiasm of industrialists and purchasing men for **Standardization** tends to make us overlook the fact that some very basic economic and legal considerations are also involved. When industry-wide uniformity of design and quality lead to uniformity of price, there is a serious threat to competition. Turn to page 75 for a thoughtful appraisal of this phase.

Cost-conscious purchasing men have been giving a lot of thought to determining the most **Economical Ordering Quantity** of the things they buy, in terms of capital investment, carrying charges, and cost of purchasing, as well as price and rate of use. The article on page 84 reports on a scientific formula for this determination, which has been reduced to convenient chart form, providing a direct reading of best lot sizes to guide the purchasing agent in making correct decisions.



What's the best type of **Educational Training** to prepare a man for a successful career in purchasing? There's a popular belief that engineering is the answer, but on page 94 a leader in purchasing takes issue with this idea. Do you agree with his conclusions?

Today's emphasis in purchasing is toward **Simple Procedures** for the routine and mechanical aspects of the job, leaving more time for constructive activities and more profitable accomplishments. Two systems are described in this issue (page 79 and page 86) that have been notably successful in applying this principle. You can get some good ideas from both.

**Overseas Defense Construction** projects have all the fascination of bigness and of far-away places. What is not always remembered is that they involve a complicated purchasing program in which bigness and distances pose additional problems for the service of procurement and supply. A considerable part of the purchasing is done stateside, where factors of scheduling and transport must be considered along with quality and quantity. A considerable part is done in foreign markets closer to the site. Turn to page 111 for an account of how one of the best known firms in this field organizes and carries on such a purchasing program.



What does the **Internal Auditor** want to know about purchasing operations? A group of auditors recently put a purchasing man on the spot. Their questions and his answers are reported on page 101.

**Small Orders** constitute a continuing problem in almost every purchasing department. One workable system for handling such purchases efficiently is described in the article on page 119.

Don't overlook these regular monthly departments, compiled for your information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 138); News of Your Suppliers (page 22), of Association Activities (page 194), and of Men in Purchasing (page 228); Keeping up to date on such developments makes for better buying.

next  
month:

**How to make better "Make or Buy" decisions**  
**Fair Trade — Materials Management — Rubber Hose**

# New Westinghouse Purchasing Plan

## Helpful to both buyer and seller

The Purchasing Department of Westinghouse Electric Corporation has initiated a new purchasing program. Through a plan called Operation Co-operation they are developing an open door policy to encourage suppliers to meet with their engineers and others in an effort to learn more about Westinghouse products and methods.

In this way it is expected that suppliers' sales representatives and engineers may be in a better position to help. By giving suppliers every encouragement to ask questions, study shop operations, products, processes, etc., Westinghouse believes its own profits can be increased.

We congratulate the Westinghouse Purchasing Department on this progressive step and are convinced that it will not only build goodwill but will also prove practical and profitable for their good company. It is realized, of course, that many other companies operate along similar lines but this

formalizing of the program by a leading purchasing department is of interest and presents a strong challenge to all suppliers to make good on every contact.

We are glad to report that our own Purchasing Department is taking a page from the Westinghouse book and is following very much the same procedure. We are also glad to report that it has always been the Ryerson policy to have our representatives go through years of training within our own organization before going into the field, so that they are well qualified on all steel products and problems.

So, again we congratulate the Westinghouse Purchasing Department and others who have similar programs because we are confident that manufacturing costs will be reduced, products improved and buying and selling costs cut. In total, we believe that our American economy will benefit by "Operation Co-operation".

## **RYERSON STEEL**

*In stock: Bars, structurals, plates, sheets, tubing, alloy and stainless steel, reinforcing bars, machinery & tools, etc.*

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI  
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## Educating the Boss for Better Purchasing Policy



*There's no simple 5-step formula for success in this important but delicate long-range project; however, a composite of tested formulas from other related areas of business activity provides a useful guide for an effective course of action*

**By Stanley E. Bryan**

*Professor of Management, University of Washington*

Professor Stanley Bryan has been very close to the professional and personal problems of purchasing men for more than a decade. As a successful teacher of purchasing at the university level and a thoughtful, constructive writer on the subject, he has made it a point to correlate his teaching with the actual experience of representative industrial purchasing offices in the community, and to take an active part in the affairs of local purchasing agents' groups. While at Michigan State University, he was closely identified with the Central Michigan P. A. Association, and has continued this relationship with the Washington P. A. Association since moving to Seattle three years ago.

**R**ECENTLY the writer took part in an executive development program. The subject of policy, including purchasing policy, was discussed. Several times the comment was made: "This is a good discussion, but my boss is the one who needs education in this. He makes the policy."

A series of discussions on purchasing policy was held in a local purchasing association. Here again there were comments like: "It's interesting to talk about these things, but top management determines the policy." One man

summed it up this way: "What we ought to do is develop a formula for educating the boss in good purchasing policy."

### **Policy—and the Boss**

Policy is the guide to action which insures consistent action on the part of members of an organization trying to achieve some commonly accepted goal. The term "policy" implies that some thought has been given to planning and promulgating this guide to action. What is sometimes for-

gotten is that *policy always exists*—if by no other reason than that some course of action has become customary because no formal policy has ever been established!

Sometimes the boss is well equipped with a knowledge of the basic economic and management principles that make for sound purchasing policy. But bosses tend to be generalists, while purchasing people tend to be specialists. This may hamper the development of a common ground for communication of ideas. Other bosses may not have the mental receptiveness for education in purchasing. And sometimes there may be mental or personality blocks between boss and subordinate.

For our approach to the problem we must assume a boss who is not specifically educated in purchasing, but who is receptive to new ideas if properly presented. The problem, then, is to find the formula to be used.

#### **Formula for Education?**

Education is a unique process. It does not lend itself well to formulas. Most education develops through a process which is far from logical in nature. Probably most education is haphazard and intuitive. The receptiveness of the student may be deceptive. There are physiological, sociological, psychological and emotional factors which enter the alchemy of learning.

One characteristic often attributed to a good executive is that he should be a good teacher. But there are opposing ideas among educators as to what constitutes good teaching.

In executive development programs, one school of thought favors use of the case method, exposing the learner to a series of situations in the form of written cases. The factors and conditions making up a given situation simulate experience pertinent to the theme. Teachers adhering strictly to this school generally abhor the idea of presenting principles or formulas. Experience is usually a very effective teacher. The case method, like experience, normally requires a long time for the learning process—a sort of osmosis—to take place.

Diametrically opposed to this method is the school of thought which believes that executives should be briefed by formula or by the presentation of principles. This presents not experience but the results of experience. The formula puts these results in capsule form, and thus attempts to shorten the learning time. It is effective only against the background of interest and meaning that might have developed in the learner. Because it does tend to shorten the learning time, and because it gives more possibility of direction on the part of the educator, the use of a formula is attractive.

It is easy to demonstrate that formulas or guides are popular in all walks of life. On the one hand there are all the old adages and proverbs. On the other hand is the new "Cinderella" concept of Operations Research, seeking out a simplified model of the operations which can be manipulated mathematically. In between, are the myriads of methods and techniques that have been developed to accomplish specific purposes.

Assuming that our purpose is to educate the boss, is there a formula that will apply? Can such a formula be developed? The objective here is to develop a formula that will apply to our purpose, and will balance effectiveness against conservation of time and energy.

#### **Formulas for Other Activities**

In most human activities, models or methods have been developed. Boiled down into formulas, they are usually expressed in a series of steps. The number of steps may vary, but it is quite common to find a five-step formula expressed, in keeping with the capsule idea.

Some of these formulas or models are shown in Table I. They are used in the various fields of selling, planning, control, thinking, and training. Although they capsulize the methods involved, to the extent that every step requires more detailed exposition, they do provide a guide to action which has proved successful in many activities. The formula for planning, for example, will be

recognized as the familiar "scientific method." The formula for training, used in training for specific job operations, will be recognized by many as the basis for JIT (Job Instruction Training) so popular during World War II. Probably more foremen were exposed to this formula than to any other training method ever proposed.

None of these formulas listed seem to apply directly to educating the boss on purchasing policy, yet there is a pattern which might be adapted to our project.

Since we are dealing with a form of education, we might start by taking a look at a similar formula that is sometimes cited in the general education field:

Prepare  
Get Interest  
Present  
Apply  
Test  
Re-teach if necessary

The initial steps of this method seem appropriate enough, but as we go further it is obvious that this teaching formula is useful on matters of policy, and in the management relationship, only if it is modified to fit the situation. Educating the boss is more like selling than like teaching spelling or arithmetic. But perhaps we can develop a formula by making the proper adaptations from the other formulas at our disposal. We shall want to make use of everything that will contribute to our purpose.

A general formula for educating the boss in purchasing policy would be something like this:

**Prepare** (*Planning techniques will help on this step*)  
**Get Attention** (*Selling techniques will help here*)  
**Present** (*Training techniques will help on this step*)  
**Use Judgment** (*Thinking techniques will help*)  
**Follow Up** (*Control techniques will help on this step*)

Our formula, then, embraces all the useful techniques developed in the several tested formulas noted for other specific activities. Graphically, might be represented as a series of "wheels within wheels," as shown in the diagram herewith.

Now, we should consider each step in greater detail.

### Step 1. Preparation

To prepare for the education of the boss on purchasing policies, define the specific problem and develop the background. Get ready by considering the situation, persons involved, and the significance of each factor.

For instance, one factor of the situation may be that the boss practices a policy of reciprocity which you believe is not good purchasing policy. This problem may or may not be of significance in its effect upon purchasing operations. It may be one of those factors which will take care of itself if sound basic policies are established. So, along with our positive preparation, there are a few "don'ts" to be observed:

**Don't** concentrate on educating the boss in matters which are not pertinent and significant.

**Don't** try to convince him on a detail without adequate and comprehensive basic preparation.

**Don't** attempt to start educating if your efforts can't be effective.

If the education process is to be a formal presentation in the board room, it requires careful preparation of problem, hypothesis, facts, and suggested action, plus planning and preparation of the presentation, utilizing all the techniques of charts and similar devices to make the point quickly and clearly. As one purchasing agent said: "I'd get exactly fifteen minutes to present my case in a situation like that!" It is to be hoped that the process doesn't have to be that formal.

However, an informal education program also requires attention to planning. And planning is improved, in most cases, by following the steps indicated in Table I—defining the problem, developing hypotheses, getting facts, formulating action and then taking it.

### Step 2. Get Attention

Part of the action is to get attention for the project in mind. In selling it is axiomatic that you must get your prospect interested in your product before you can

**Table I**

Some general "capsule" formulas for various types of activities

#### Selling

Prepare  
Get Attention  
Give Pitch  
Clinch Sale  
Re-sell

#### Planning

Define Problem  
Hypothesis  
Get Facts  
Formulate Action  
Take Action

#### Control

Prepare  
Schedule  
Release  
Complete  
Follow-Up

#### Thinking

Background  
Meaning  
Ideas  
Judgment  
Compromise

#### Training

Get Ready  
Prepare Worker  
Present  
Try Out  
Follow Up

make your pitch effective. To get the boss's attention on purchasing policy, first consider how the matter might become meaningful to him. The boss has other background and other problems. The policy problems confronting the purchasing man may or may not seem important to the boss.

Timing is an important factor in getting the boss interested. There are right times and wrong times to get attention. If the boss is rapidly developing ulcers because of tremendous production problems demanding his immediate and consuming attention, it is probably the wrong time to get his attention on matters of gratuities or employee purchasing policy. It might be the right time to get his attention on policy matters that would constructively aid in overcoming the production problems.

Certain alternative hypotheses can be considered that will be helpful in proper timing to get attention. For example:

1. Strike while the iron is hot.
2. Wait until things get so bad that action is imperative; or
3. Keep one jump ahead of the boss in planning policy and await the proper opening.

Most persons learn quickly and intuitively how to get a particular boss's attention and interest in a real policy problem, if they will seriously put their talents to work. The important thing is (a) to be prepared; (b) prepare the boss by giving the problem meaning for him; and (c) timing the presentation right.

### Step 3. Presentation

Up to this point we have defined our objective or plan and have assembled the facts; we have determined how and when to get the proper attention. Now our success depends upon the method of presentation. Assuming that the boss is a logical person, this requires that ideas and facts be put in logical form for presentation.

For example, reciprocity may have reached the stage where it has importance and significance enough to attract the boss's interest. The purchasing man believes it is hampering purchasing efficiency and wants to have a policy established to discourage reciprocal dealings. He should have the facts and figures on actual volume and dollars involved, and on extra costs and restricted competition in purchasing that have resulted.

He must make a case showing that good economics is good business in the long run. He must be prepared to point out that while the company might lose sales in the short view, amounting to a certain volume, putting the purchasing department upon a more efficient footing will make the company stronger and more profitable in the longer view, able to compete for business on a broader basis.

Your case has to be presented convincingly. Try it on yourself, as objectively as possible. If you can't make a convincing presenta-



tion you probably don't have a good case, or your preparation has not been adequate.

A convincing presentation needs (a) reasons why the problem is important to the business, (b) the basic facts as you see them, and (c) a suggested policy designed to correct or improve the situation.

Few policy change decisions are made on the basis of generalities or abstract opinion. If you believe that acceptance of gratuities has reached a point where it is affecting good judgment, you probably have some facts to substantiate your opinion. If you feel you are spending too much time and energy on buying for employees, you should be able to develop some figures to prove the point.

If you have the facts, choose the right time, and present your

case well, your effort to educate the boss on a particular policy matter has real chances of success.

#### Step 4. Judgment

Judgment is important in the education process. You may have all the preceding steps and "clinched the sale" on certain policy matters. But formulating action, trying out the operation of a policy and completing its effectiveness takes judgment.

In this fourth step, judgment may convince you that you didn't really educate the boss. He may have had some good ideas in opposition to yours, and judgment may tell you that you were the one who was being educated. Or judgment may indicate that your ideas ought to be modified if you are to educate the boss realistically.

Through judgment you may

be able to arrive at an intelligent compromise on policy which will be in line with certain existing factors and will help in truly educating the boss. The exercise of judgment may spell the difference between enthusiastic management backing and casual lip service.

Judgment is part of the process of thinking, so the steps, in the thinking formula — background, meaning, ideas, judgment, compromise—are helpful at this stage. The background of the individual, both in actual experience and education, are important factors in his thinking process. It is this background that creates meaning and understanding of a particular problem. Against background and meaning, many useful ideas are generated. But some of these ideas must be eliminated or modified through judgment. Compromise of this sort is inherent within the thinking process.

#### Step 5. Follow-Up

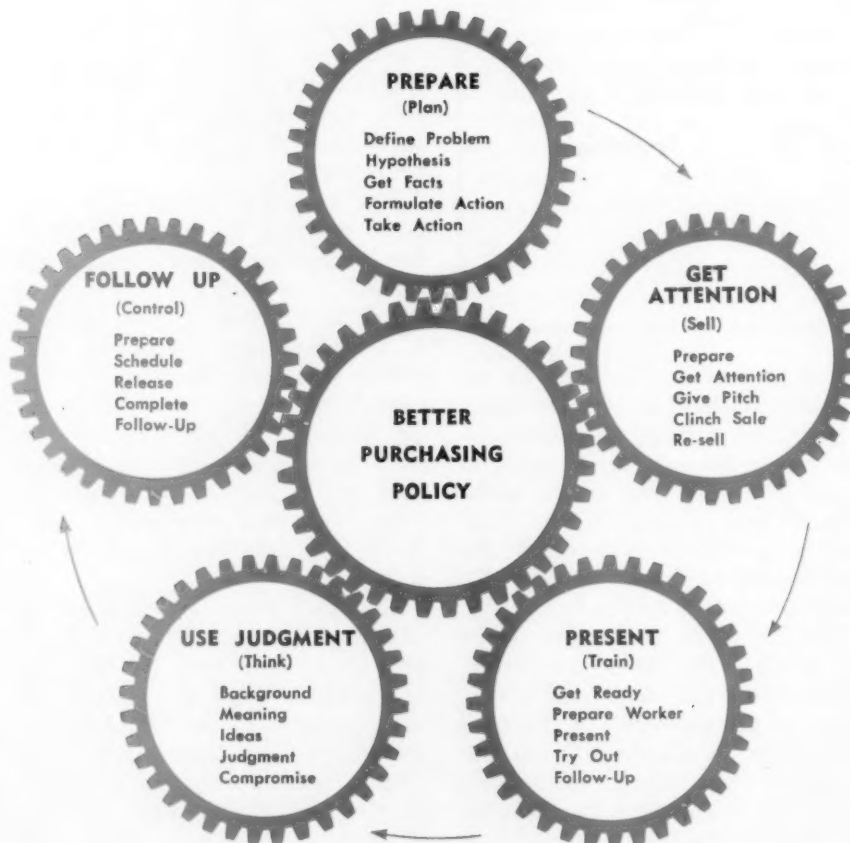
Education of any kind is generally a repetitious process. Some concepts seem to secure a tenacious hold the first time they are presented, assuming proper preparation, interest, and presentation. Usually, however, complex concepts and those involving change have to be learned through repetition. (The Synapse Theory of developing neural paths through repetition of responses testifies to this pattern in learning.)

We have seen that the final step in the general education formula is "Re-teach if necessary"—i.e., if the test shows that initial teaching has failed. But in the selling and training formulas, where we assume that the sale has been made and the training has taken effect, we also find a final step of re-selling or follow-up. This indicates the general need for a control aspect in education, to insure completion and action.

In our project we may assume several alternatives at this stage:

1. The boss didn't respond to education.

2. The boss did respond and, in your estimation, acquired the desired knowledge and conviction  
(Please turn to page 296)



#### WHEELS WITHIN WHEELS

How the formulas for other processes are related to the cycle of education, incorporated as guides to action in educating management to better purchasing policy



Vice Admiral George F. Hussey, USN (ret.), Managing Director of the American Standards Association (left) listens with some concern as Federal Trade Commissioner Lowell Mason voices reservations regarding the commercial and legal aspects of standardization programs.

## Legal Aspects of Standardization

By A. N. Wecksler

**I**NDUSTRY ACTIONS can be sensible —and still be against the law.

Take industry standards. Without standards in screw threads (as the most elementary example) modern industry and the products for modern living would be impossible.

So, there is a general acceptance of standards. In fact, before 1934 no legal problem was involved. The Supreme Court, the Federal Trade Commission, and the Department of Justice looked with calm and even with favor, on national standards.

Since 1934, the Government has raised numerous legal questions. By now, the legal problems have become so important that the American Standards Association and the National Bureau of Standards, at the Sixth National Conference on Standards held recently in Washington, devoted an

entire session to the Legal Implications of Standardization.

This whole question is of vital interest to the purchasing agent, who is the ultimate arbiter on what should be standardized and where the area of warranty by the product maker is sufficient.

### Group Actions Are Suspect

The session on legal implications of standards was keynoted with the point made by Lowell Mason, a Commissioner of the Federal Trade Commission, that the Government is sharply divided on the issue.

The Department of Commerce, the military, the Federal Supply Service, and other purchasing agencies of the Government continuously press for more standardization. The Federal Trade Commission and the Department of Justice take a much more jaundiced look at standards, viewing

them with the possible implication of price-fixing conspiracy.

Commissioner Mason, in setting the tone for the ASA forum, explained his position along the following lines:

In 1940, when Assistant Attorney General Thurman Arnold answered a query on standards, he wrote, "Standardization programs in and of themselves are not condemned by the department." This chilly observation carried what lawyers call a negative pregnant. It was like the first mate's notation in the ship's log — "Tonight the captain came aboard ship sober." There was a none too delicate intimation to the contrary in Mr. Arnold's faint praise.

Here is a concrete example of the evils that this "damning with faint praise" can generate:

Some years ago, a medical project was outlined for conducting research on objects implanted



Ralstone R. Irvine: "Similarity in prices does not necessarily evidence a conspiracy."



Maxwell H. Elliott: "Government should work with industry on standards as closely as the law will allow."



Ephraim Jacobs: "Some standardization programs have been abused, thereby eliminating competition."

by surgery in the human body — braces, pins, plates, etc. There was need for additional knowledge on how such objects acted within the body. On completion of the research, the doctors planned to sit down with the manufacturers and others who were interested, and to draft a set of standards. The project was dropped and has never been taken up again. It was dropped on legal advice, simply because of fear of a possible antitrust action following such a medical and industry-wide conference. Who has suffered most from that surrender to the fear of antitrust action?

#### **A Forum for Understanding**

The problems of national standards and the antitrust laws are so big and numerous that fumbling is inevitable. But that doesn't mean, the goal of cooperation should be abandoned. If bureaucracy has failed in a dozen years of striving to see eye to eye with itself, perhaps it has been because the National Conference on Standards has not until now furnished an open forum where administrators can make a real effort to understand each other.

Taking part in the forum were: Ralstone R. Irving, an attorney, who gave the legal viewpoint on standards as seen from a private industry concept; Ephraim Jacobs, chief of the Legislative

and Clearance Section, Antitrust Division, Department of Justice, who described the Government law enforcement agency approach; and Maxwell H. Elliott, general counsel for the General Services Administration, who discussed the legal limitations on Government procurement agencies insofar as standards are involved.

#### **Industry's Brief**

Irvine described the legal implications from an industry lawyer's viewpoint. The gist of this viewpoint is:

No federal court has ever held standardization as such to be illegal under the antitrust laws. On the contrary, standardization frequently has been commended by the courts and the Federal Trade Commission. The Supreme Court has described standardization as an activity "admittedly beneficial to the industry and to consumers."

The term "standardization" has been used to cover a multitude of different activities. A standard is simply a definition of a product or procedure in terms of certain features. Standardization, accordingly, is simply the process of reaching agreement on the form and content of such a definition. It is not an agreement to do anything. Thus, the adoption of a standard, though of course it is

meant to be used, does not imply any particular use by anybody.

An agreement to employ standardization as a means to carry out a price-fixing conspiracy is not standardization. Similarly, an agreement among dominant producers or purchasers to manufacture or purchase only in accordance with a standard might curtail production or boycott suppliers, but such an agreement is not standardization. Where standards are accepted, quality and price determine the customer's choice, rather than the color and design of the label. Competition is not eliminated, but instead, quality competition and price competition are encouraged, while price-raising competition and ballyhoo are made less profitable.

#### **Results on Pricing**

Standardization has been criticized because, under some circumstances, it may tend to produce similarity or identity of price. Does such price behavior flow from competition, or does it evidence a conspiracy?

One of the consequences of standardization may be similarity of product, both in design and performance. This usually results when standards are designed for products for identical operation or performance. Whenever com-

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## Are GRAY MARKETS Reappearing?

During the periods 1946-48 and 1950-52 many commodities were in tight supply. "Special" deals were needed to get deliveries and posted prices were meaningless. Today, tightness of supply is again evident. Whereas one year ago prices of some primary metals had declined, and others showed weakness, the situation has reversed and prices are going up. To determine if today's situation is beginning to parallel the two previous periods, we asked purchasing men a series of questions aimed at evaluating the success of scientific procurement techniques in holding down costs. Their combined answers follow.

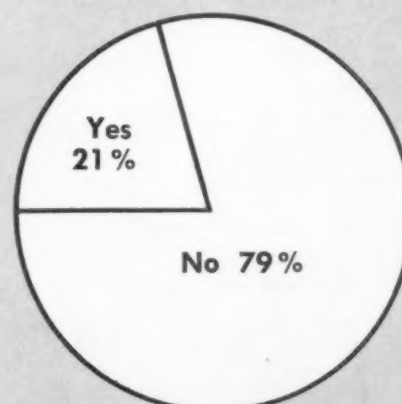
1. Have you been obliged, within recent months, to pay more than the posted market prices for commodities and products in tight supply?



2. Have you been obliged to pay premium charges or make conversion deals in order to get deliveries?



3. Are you receiving any substantial offerings of hard-to-get items through other than the usual channels of distribution?



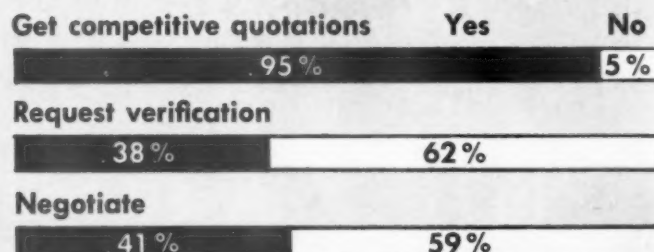
4. In your opinion, are suppliers of fabricated items including *anticipated* higher costs in their quotations (as distinct from additional costs actually incurred)?

In this instance, 49% of the respondents felt that a few of their suppliers were including anticipated higher costs in quotations. 42% noted that some of their suppliers followed this technique. Only 3% of the respondents claimed most of their suppliers did this. And 6% stated that they found no instances of anticipated higher costs in their quotations.

5 (A) When a supplier quotes increased prices, do you, as a general practice, take the supplier's word that the higher costs justify the price increase?



(B) Or do you get competitive quotations, request verification in the form of cost breakdowns, or negotiate on the basis of improved productivity, learning curves, etc.?



On a query as to commodities being offered through "gray market" channels, the following was indicated:

Steel, known to be in short supply, was listed most often as being offered by other than normal means. This covered particularly

sheet, structural shapes and silicon steel. Other commodities, listed according to number of times mentioned, include;

Nickel	Aluminum	Selenium
Copper	Paper	Scrap iron
Titanium dioxide	Zinc	Cement

## WHAT THEY SAY

"Of course many materials are 'tight' and prices are high, but even the most prosperous suppliers must protect their volume accounts in event of possible negative purchasing trends in the future."

"The 'gray market' is not as extensive as in previous years. Prices, however, are somewhat higher in proportion."

"My mail is full of postcards and mimeographed 'stock lists' from coat-pocket 'warehouses'."

"We 'protest' all price increases, unless substantiated by accurate cost figures. Even so, we attempt to negotiate on the basis of our own continuing program of cost and market analysis."

"We have had fabricated items offered us at two different prices—one for extended delivery and a higher one for prompt delivery."

"So far we have not experienced gray market demands. Prices have been edging upwards, but competitive quotations have corrected this trend in many instances."

"I feel some vendors are jumping on the bandwagon with price increases. A letter is sent to each vendor announcing increases stating we are looking for substitute materials, at a lower price, to replace their material."

"I am confident our suppliers do not raise prices unless forced to by increased cost of production."

"We notice a slight easing in the steel picture (sheets) and many mill men are 'admitting' that second quarter may bring further availability of steel. Non-ferrous markets remain fairly long, but available if orders are placed with sufficient lead time."

"While we have not been offered any specific items, we have noticed an increase in literature and contacting of us by groups we had never heard of before. These groups 'played up' the tight supply situation and have asked for opportunities to quote. One chance was given and the quotation was about 200% higher than the going market price."

"Most vendors are sincerely trying to hold the price line."

Purchase volume tripled in a single year, and operations expanded to embrace five product divisions in eight plants in the Pasadena area. Purchasing has kept pace with this phenomenal development by putting the emphasis on superior personnel and sound policies, rather than more elaborate procedures. Unique assignment of the buying staff provides close, first-hand attention to all details of manufacturing needs without sacrificing central control of procurement activities.



Don Jaxtheimer

**The business has grown fast,  
bigger and more complex, but . . .**

## We've Kept Purchasing Simple

**says Don Jaxtheimer**

*Procurement Manager, Hycon Mfg. Company, Pasadena, Cal.*

**P**URCHASING at Hycon Manufacturing Company currently requires the issuance of about 18,000 purchase orders annually, to more than 900 different vendors. It is essential to the maintenance of a mushrooming research and development program and production projects involving the manufacture of such diversified items as aerial cameras, Mighty Mouse rockets, and electronic test instruments for both military and commercial uses.

The procedures used in this connection were evolved to meet the needs of a rapidly expanding operation. Scope of this expansion is indicated by the fact that the annual dollar value of our purchase orders more than tripled—from about \$2 million in 1953, to well over \$6 million in 1954.

The company's expansion has also taken place in somewhat unusual circumstances. Due to a lack of large industrial plant sites in the Pasadena area, the growing space requirements have been handled by establishing a series of relatively small plants instead of building additions to the main plant. At the time of this writing,

the company has five divisions, located in eight plants.

### **Purchasing Set-Up**

Purchasing activities for this diversified operation is efficiently handled and closely controlled by a procurement department having 24 employees, 11 of whom are buyers. At least one buyer is permanently stationed at each of our plants. His job is to ascertain production requirements, locate vendors, obtain bids, and otherwise perform the function of a purchasing agent—up to the point where orders are signed. All purchase orders must be signed by the Procurement Manager at our headquarters plant before they become valid. This enables the

Procurement Manager to coordinate the over-all program and to keep closely in touch with all that is going on in the department.

Purchased items are classed as "direct" (or prime cost) materials and products, and "indirect" (capital or expense) items. Requisitions for direct items originate in our manufacturing and engineering departments, and are transmitted directly to the appropriate buyers. Requisitions for indirect items may originate in any department, but must be approved by management before they can be accepted by purchasing.

Allowable quantities of direct items on requisitions are computed in terms of our contract



requirements, plus a normal scrap allowance and minus any quantities of the same items which are available in our certified free stores inventory.

Our paperwork is notable mainly for its simplicity. The only forms used in this system are requisitions and purchase orders. However, in addition to meeting all accounting requirements, it has what we consider the great virtue of minimizing waste motion and confusion.

Most of the material pertaining to any given purchase order—including bids, correspondence with vendors, the requisition, the purchase order ditto master, and one copy of the order—is filed in our division purchasing offices. Copies of the purchase orders alone are filed in the main purchasing office, since the Procurement Manager rarely has need for any file data that cannot be provided from this source.

### Picking the Vendor

When it comes to expediting, we have more faith in preventives than in cures. Our expeditors, therefore, have a somewhat different role than in some other companies. They work in close collaboration with our quality control people. One of their most important functions is to find out whether prospective suppliers have the financial stability, plant facilities, and quality control systems they need in order to meet our specifications and to make on-schedule deliveries. In some cases, the expeditors must also determine whether prospective vendors can get the security clearance that is required to handle certain types of subcontract work for the armed forces.

Wherever possible, we expect the buyer who receives a requisition to obtain at least three bids from vendors *who have been approved by our expeditors*.

Our buyers are not expected to allocate all orders to the lowest bidders, but they are expected to have good reasons for not taking advantage of the lowest bids. One of the best reasons for not placing an order with a low bidder, in our estimation, is a well founded doubt as to whether a vendor can earn a fair profit at the price he

Paperwork is kept to an absolute minimum. All record, control, and accounting needs are satisfied with just two purchasing forms—a 6-part requisition with snap-out carbons, and a purchase order form processed with a ditto master.

**HYCON MFG. COMPANY**  
2961 E. Colorado Street  
Pasadena 8, Calif.

**PURCHASE ORDER REQUISITION**  
No. 28828  
Purchase Order No. \_\_\_\_\_  
TAXABLE ☐  
RETAIL ☐

DATE: \_\_\_\_\_ MONTH: \_\_\_\_\_ YEAR: \_\_\_\_\_  
F.O.B. \_\_\_\_\_ DELIVERY SCHEDULED \_\_\_\_\_

TERMS: \_\_\_\_\_  
DELIVERY REQUIRED: \_\_\_\_\_  
SUGGESTED SOURCE: \_\_\_\_\_  
BOUGHT FROM: \_\_\_\_\_

SHIP TO: \_\_\_\_\_  
PRICE: \_\_\_\_\_ DISCOUNT: \_\_\_\_\_ TOTAL: \_\_\_\_\_

**HYCON MFG. COMPANY**  
2961 East Colorado Street  
Pasadena 8, California

**PURCHASE ORDER**  
NO. \_\_\_\_\_  
REQ. NO. \_\_\_\_\_  
TAXABLE ☐  
RETAIL ☐

DATE: \_\_\_\_\_ MONTH: \_\_\_\_\_ YEAR: \_\_\_\_\_  
F.O.B. \_\_\_\_\_ DELIVERY SCHEDULED \_\_\_\_\_

SHIP TO: \_\_\_\_\_  
PRICE: \_\_\_\_\_ DISCOUNT: \_\_\_\_\_ TOTAL: \_\_\_\_\_

**CONFIRMING**  
PLEASE OBSERVE THE FOLLOWING INSTRUCTIONS:  
1. Order Number must appear on all invoices and packages.  
2. Acknowledge receipt of order and advise without fail when shipment will be made.  
3. All orders with bill of lading on day of shipment.  
4. This order must not be filled at a higher price than last quoted or charged without our permission.  
5. No charge allowed for loading, unloading or cartage.  
6. We reserve the right to cancel orders filled promptly.  
7. Attached terms and conditions are a part hereof.

**HYCON MFG. COMPANY**  
PURCHASING AGENT

has quoted. Suppliers who learn, too late, that they are not going to make money on a certain order, can be quite unreliable in their performance. Even if they live up to the terms of their contracts, they are likely to harbor sentiments that may eventually hurt Hycon in unexpected ways.

Before issuing repeat orders, our buyers have instructions to find out if vendors' prices can be reduced due to the absorption of tooling costs, or improved efficiency gained in handling previ-

ous orders. We don't expect a supplier to take a reduced margin of profit on a repeat order, as compared with the initial order. However, if our continued patronage substantially increases those profits, we feel that we are entitled to share the benefits.

### Policy and Personnel

As already intimated, our most important problem is the matter of maintaining good vendor relations. We have solved this problem to some extent by adopting



Hycon's diversified operations range from mass assembly of Mighty Mouse rockets for the Navy to intricate custom-built electronic and photographic devices.



In addition to manufacturing aerial photographic equipment, Hycon carries on a profitable aerial survey operation. Maps made by this method are exceptionally detailed and accurate, and are produced in a fraction of the time required by use of conventional ground-based surveying instruments.

business policies which are both sound and humane.

While we hire only experienced men in purchasing, each of our new buyers is put through a period of training. The length of this training period depends on the individual. During this period, the buyer is closely supervised and evaluated—not only on his ability to understand the mechanical aspects of our operation, but also on the way he gets along with people.

We do not maintain that any

good buyer should or could be a back-slapper or a "good time Charlie"—especially not the latter. But we do insist that he should be:

- ... courteous enough not to waste a salesman's time;
- ... fair-minded enough to make sound decisions;
- ... tactful enough not to act like a petty tyrant just because he happens to be on the buying end of a deal; and
- ... level-headed enough to

discuss rejects with a distraught vendor without losing his temper.

He should be cost-conscious, too, but not so cost-conscious that he would cut off an old vendor who had pulled us through many tight squeezes on delivery.

Common sense being not nearly as common as is generally supposed, there aren't too many buyers who measure up to our specifications. But to date we've been fortunate in finding our share of those who were available.

# SALES TAX DOES NOT APPLY

....when materials are merely incidental  
to services performed for the customer

*By Albert Woodruff Gray*

**A** MACHINE TOOL manufacturer in Illinois sued to vacate an assessment of a sales tax for \$629.39 imposed on the manufacture and sale of a specially designed machine for milling the inside surfaces of the bearing supports in the engine blocks in the manufacture of industrial motors.

It was conceded that no other machine of that type would probably ever be built, and it was of no value for any other purpose. "Should the purchaser desire to change or discontinue the particular type of motor being manufactured," commented the court, "the machine would be of no value except as junk."

The sales or Retailers Occupation Tax in that state provides: "A tax is imposed upon persons engaged in the business of selling tangible personal property at retail," with the definition of a sale at retail as, "A transfer of the ownership of or title to tangible personal property to the purchaser for use or consumption."

The Supreme Court of that state, in setting aside the assessment as unauthorized under the

statute, said: "Here the purchaser did not merely purchase from the manufacturer a machine, but purchased a particular machine to do a special job to be manufactured and engineered by the manufacturer for the specialized work. The machine has no commercial value, the same as a fabricated die or jig or gage or other pattern used in the manufacturing business.

"It is not the sale of a machine but it is the manufacture of a particular machine for a special purpose, and a sale is not taxable where it is merely incidental to a special service rendered the purchaser.

"After a careful analysis of the facts and situation in this case we are of the opinion that the primary occupation of the manufacturer is that of furnishing a specially constructed machine on order, produced through the technical engineering skill of the manufacturer, for the purpose of doing a special job, and not merely a sale at retail of tangible personal property."

This same situation involving

the sales tax statute of the State of Washington had come before the Supreme Court of that state a few years before. That statute imposed a tax "on each retail sale in this state equal to 2% of the selling price," with the definition, "The term 'selling price' means the consideration without any deduction on account of the cost of tangible property sold."

A printing company had prepared and furnished the North Pacific Coast Freight Bureau rate schedules and supplements for \$10,636.23 and the state imposed a sales tax on the printer of \$212.75 (the 2% of the statute). The value of the material in the printing job was but 14% of the total charge.

In granting the taxpayer a refund of this tax the court quoted as authority for so doing a decision by an Illinois court of a case involving the sale of blueprints.

"By the use of their apparatus and the destruction of sensitized paper they produced for each individual customer the required copies of the customer's own property. It is the contention of the tax department that the paper with the reproduction on it is the subject of sale. But this can hardly be true under the statute we are considering because the paper is destroyed when the exposure is made and it has no further use or value to anyone other than the person interested in that particular reproduction.

"We can perceive no logical difference between the paper upon which a photostatic copy of something is made or a blueprint produced, and that paper which a lawyer uses for writing a will or deed, a doctor for writing a prescription, or an abstractor for showing a chain of title. The paper is a mere incident. The skilled service is that which is required."

## **Material and Labor Charges**

While the infinite variety of the sales tax statutes throughout the country corresponds to the box of bones which the old shopkeeper in Dickens' story called the "human various," the essential feature in every one of these statutes is the sale of merchan-



dise. No tax is imposed on services or labor, and insofar as the price represents both of these features, so much as represents labor or services should go untaxed.

An instance of the frequent confusion between a taxable sale and services that are free of a sales tax occurred recently in Ohio. An upholstery company in its charges to customers for work in furniture repairing set out in its invoices only one item, which included both labor and material, and to this amount added the sales tax which it computed on the estimated value of the material used.

### Sales Tax

No breakdown was made between these two items although the charges on the books of the company were separated to show these two items. A sales tax was imposed on the total of these invoices and the tax commissioner opposed the claim of the upholsterer to a reduction of the tax by the portion of the total price which represented services or labor.

The sales tax statute provided in relation to the computation of the tax, "Price shall not include the consideration received for labor or services used in installing, applying, remodeling or repairing the property sold if the consideration for such services is separately stated from the consideration received for the tangible personal property transferred in the retail sale."

The Ohio court in granting relief to this taxpayer from the sales tax assessed on receipts for labor, said,

"Nowhere in the act is it stipulated how or in what manner the consideration for services and that for materials shall be 'separately stated', to except the former as a predicate for the tax. This court concludes that within the purview of the Ohio Sales Tax Act taken as a whole, the upholsterer in making a breakdown of and separately stating on his books the charges for services and materials to his customers in the repair of upholstery, sufficiently complied with the Act to

enable him to have excepted as a predicate for the sales tax the charge for services in such upholstery repair transactions."

### Materials Are Incidental

No benefit is lost and much may be gained in separating, where it is feasible, on books of account and in invoices, the charges for services from those for materials. The Supreme Court of Illinois, a few years ago, in a case, involving the sales taxes imposed on the charges for remodeling and repairing fur garments, where approximately 15% of the price represented material, 25% labor and the remaining 60% overhead and profit, said of the failure to allocate these two items:

"It is a matter of general knowledge that a fur garment in need of repair cannot generally be restored to a servicable condition without the installation of some material, either new or used, and that such repairing requires the skill of the furrier to match the fur as well as to fit the linings.

"In this case when a customer brings in a garment, it is for the purpose of repair, and the selection, matching and fitting in of fur pieces or lining material used is left to the choice and skill of the furrier. It is evident that the thing sought by the customers of the furriers and furnished by them is the repair of fur garments and fur pieces brought in by them. The use of materials necessary to the primary purpose

of the contract is incidental to it.

"We are of the opinion in this case that these furriers should be business rather than in the retail sale business, so far as the sales of materials are concerned, and that such sales are but incidental to the repair business."

### Personal Services

In another instance of this character a wholesale distributor of leather products recently sued a shoe repairman for the sales tax imposed in Georgia. The statute of that state is: "'Retail sale' or a 'sale at retail' means a sale to a consumer or to any person for any purpose other than for resale in the form of tangible, personal property."

The shoe repairman contended in his defense to this action by the seller for the sales tax that these accessories, such as heels, soles, thread, tacks, represented approximately 50% of the charge for repair work and were purchases for resale.

In its decision holding the repairman liable for this tax and that the work done by him in which these products had been used, was taxable notwithstanding that the transaction was essentially not a sale of merchandise but services in which the material was incidental, the court said:

"Shoe repairs may reasonably be said to fall within the category of 'personal service transactions

(Please turn to page 318)

### REFERENCES

- Ingersoll Milling Machine Co. v. Dept. Rev., 90 N.E. 2d 747, Illinois, January 18, 1950
- Illinois Rev. Stat., Ch. 120, secs. 440, 441.
- Washington Printing & Binding Co. v. State, 75 Pac. 2d 1326, Washington, December 2, 1937
- Roberts v. Glander, 102 N.E. 2d 242, Ohio, November 21, 1951
- Mahon v. Nudelman, 36 N.E. 2d 550, Illinois, September 15, 1941
- Criag-Tourial Leather Co. v. Reynolds, 73 S.E. 2d 749, Georgia, December 5, 1952
- Wilson v. Glander, 86 N.E. 2d 761, Ohio, June 8, 1949

# A convenient guide to ECONOMICAL LOT SIZE in Purchasing

By J. F. Vollmer

Bucyrus-Erie Company  
South Milwaukee, Wis.

**C**ONTROLLING the purchased parts inventory must take into consideration the cost of control and paperwork as well as the quantity and cost factors of what might be the proper amount of inventory. Frequent reviewing of records for ordering, repeated calculations or conferences, and the actual placing of orders can be very expensive in relation to the value of the parts being reviewed.

We recognize that the total value of the material being ordered is most important and must fit into an economical pattern in relation to the cost of procurement and to the total inventory investment. We have found that by analyzing the value of a one month's supply of an item, we can make quick and sound decisions for ordering in quantities which enable us to make substantial clerical savings in our purchasing and inventory control departments. Depending upon the present ordering practice of a company, application of these principles can effect savings of 15% to 40% in these control and ordering costs.

If we classify and segregate the high investment items ("A" items), intermediate ("B" items), and low investment items ("C" items) in our inventory, it usual-

ly reveals that the company has as much as 80% of its inventory dollar tied up in only 10% of the items carried. The remaining 90% of items represent a small fraction of total inventory. It is in this group that control costs are likely to be disproportionately high in relation to value.

After deciding what the "B" and "C" items are, the problem is how much of each to order. This problem can be solved easily and automatically by the use of charts. We have used this method to assist in determining economical lot sizes for these items.

Our charts are based on a well known formula:

$$Q = \sqrt{\frac{2RS}{KC}}$$

In this formula:

Q = Economic lot size (units)

R = Annual requirements (units)

S = Cost of issuing a purchase order

K = Inventory cost factor (percentage of unit cost)

C = Unit cost (average price)

It frequently happens that K, the inventory cost factor, varies according to the type of material. Items should be classified as to this factor, and a separate chart made for each factor used.

Semi-logarithmic graph paper works out very well in making the charts. Using the variable

scale as the horizontal axis, write in the dollar values of one month's supply, in dollars. On the vertical scale indicate the number of months' supply to order.

Now determine from the formula, various values of Q based on selected values of R and C (K being a constant for any given chart). Since your result will be in terms of units, it is necessary to convert this into the number of months' supply that it represents, and plot the resulting curve on your chart. Because of the obsolescence factor and the possibility of lower prices over an extended period, a maximum number of months' supply can be set and the curve of the chart made to conform to this limitation of time. The sample chart (Figure 1) is based on a value of \$3 for S and a value of 17% for K. A maximum of 12 months' supply has been set.

For convenience in use, the chart can be redrawn as indicated in Figure 2, correlating the number of months' supply to purchase with practicable ranges of dollar values of one month's supply. Now you have a direct reading chart or table indicating economical lot size.

To use it, determine the monthly requirements of an item in number of units, and multiply by

the unit cost. This gives you the dollar value of a month's supply. Find where this falls in the divisions along the horizontal scale. The figure immediately above, in the same column, tells you how many months' supply to order.

In conclusion, here are a few practical tips on this system.

1. You have to know your costs in order to use the chart at all.

2. Classify your items according to inventory cost factor K, and use a separate chart for each

value of K. In a moderately simple operation, two values of K may be sufficient to cover all cases. In large, complex operations, with a wide variety of materials carried in inventory, items can usually be grouped within not more than four such K values.

3. Don't try to use the chart for items quoted with a sliding scale of quantity discounts, since this makes the C factor a variable, depending on quantity.

4. Use common sense, consider-

ing storage problems and the factor of deterioration. For example, don't follow the chart if it tells you to buy six months' supply of a bulky item when you haven't any place to store it or of a perishable item that will go bad a month or two after you put it on the shelf.

But for the vast majority of your items, the chart will provide a fast and reliable guide to ordering quantity, at a minimum cost for this essential control.

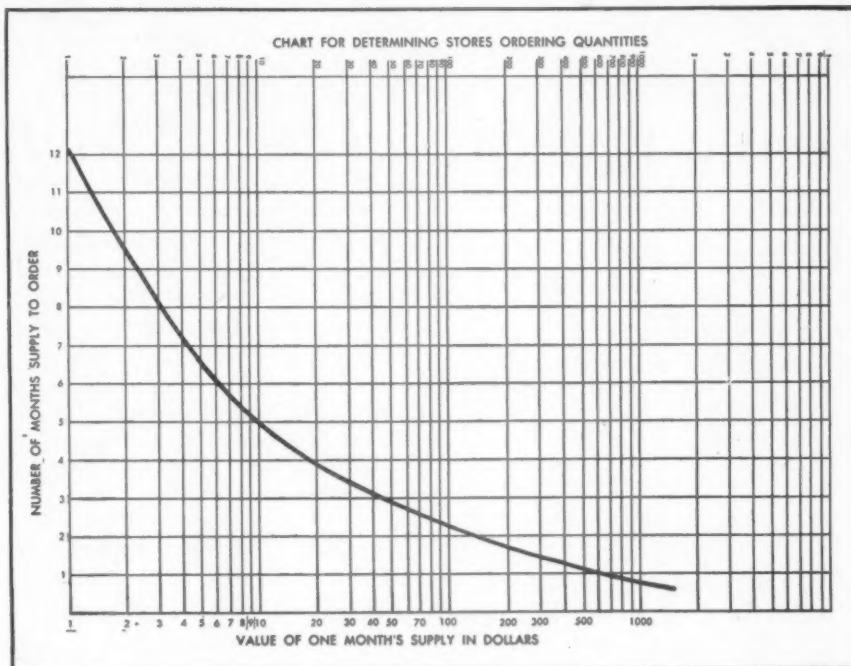
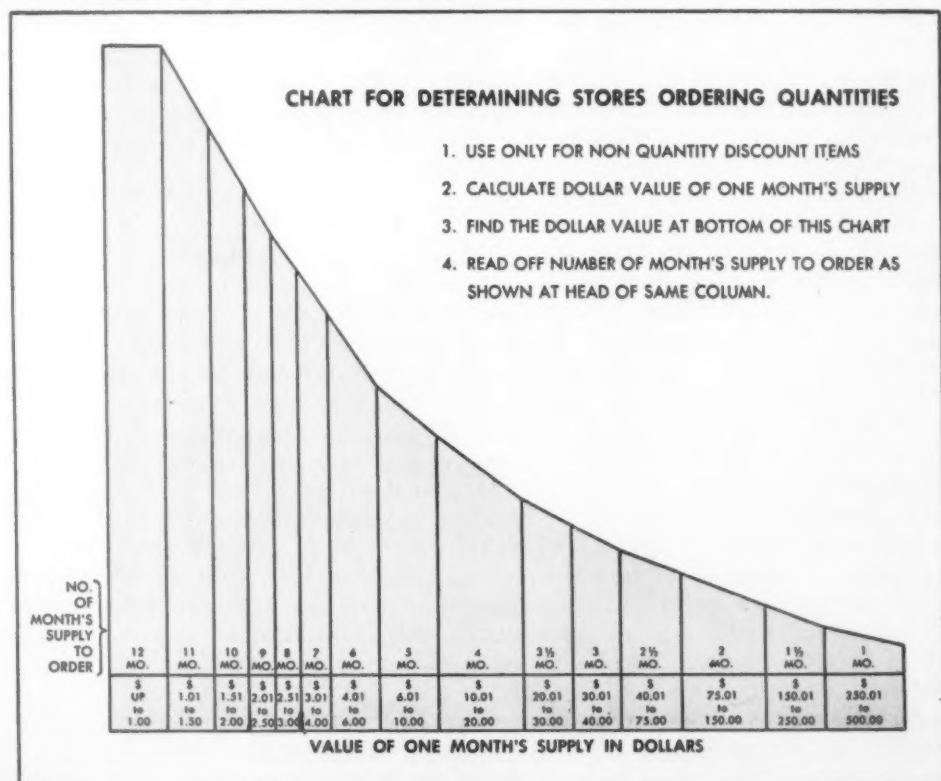


FIGURE 1

FIGURE 2







## Avoiding the Pitfalls of DECENTRALIZED PURCHASING

*How Parker Appliance Company capitalizes on the advantages of divisional organization without sacrificing the efficiency inherent in total volume, central policy and control*

By Dean S. Ammer

**M**ULTI-BILLION DOLLAR corporations like General Electric and General Motors have found it expedient and profitable for years to decentralize line and staff management. Now many smaller organizations are finding this same approach to be adaptable to their own operations. One concern that has gone all out for decentralization is the Parker Appliance Company of Cleveland. Its sales of about \$25 million annually hardly warrant the classification of "giant business". Yet Parker has found it beneficial to break down all of its operations—including purchasing—into four separate divisions.

The theory behind decentralization is that an entire company with diversified operations may be just too big and too unwieldy to manage in detail from a single office. The obvious solution is to break up the business into a number of separate units. Each unit can then operate almost like a separate company, with responsibility for its own profitable operation.

At Parker Appliance, there is a purchasing agent for each division, reporting directly to the division manager. In addition, Parker has a corporate purchasing agent. He handles company-wide purchases for all divisions and also helps guide division purchasing agents on policies and procedures.

### Pros and Cons

Breaking up a company-wide purchasing department into a number of divisional units has both advantages and possible pitfalls. It permits the respective buyers to concentrate more completely on the commodities and problems unique to a particular product line. They have more chance to "rub elbows" with the people in their production, engineering and quality control departments, and are more likely to get to really understand the problems these other departments have.

But from the standpoint of the over-all company operation, there are at least two major pit-

Frequent meetings of the buying staff keep Parker's decentralized purchasing department working as a consistent and integrated team. (l. to r.) F. A. Jenkins, Tube & Hose Fittings Div.; E. Lukas, Rubber Products Div.; C. A. Hill, Industrial Hydraulics Div.; H. H. Krause, Corporate P.A.; W. A. Keller, Aircraft Div.

falls in such decentralization. First is the problem of what to do when more than one division uses significant amounts of the same part or material. If two buyers work independently of each other, the company's over-all buying is diluted. This often means higher prices for the divided quantity. And the buyers may even compete with each other, in dealings with the same supplier, for the same material.

Second, in the interest of efficiency, the bigger the departmental unit, the easier it is to avoid duplication of effort and hire and make use of specialized skills for various tasks. The bigger the work load, the easier it is to break it down into its basic parts.

### Avoiding the Pitfalls

Because of the nature of its products, organization and procedures, Parker Appliance is fortunate. It has enjoyed the advantages of decentralization and avoided most of the pitfalls.

The company has four divisions: Tube and Hose Fittings, Rubber Products, Industrial Hydraulics, and Engine Accessories. Their products are entirely dissimilar, so there is little overlap in the parts and materials they buy.

Each division purchasing agent specializes in the particular line of commodities he buys. Items that are used in significant quantities by all divisions are bought by the corporate purchasing agent, H. H. Krause. He buys such things as coal, shop services, etc. Naturally, his quantities and prices are based on the combined usages of every division.

Many companies have stayed away from decentralized purchasing because they felt it would require a great increase in personnel. Theoretically, the greater specialization of effort in the

(USE FOR OTHER THAN COMMERCIALLY AVAILABLE ITEMS)

BACK OF PAGE 101-20

VENDOR

P.O. NUMBER

JOB NUMBER

DATE

1. QUANTITY

2. PROCESS ENG. #

3. DUE DATE

4. DELIVERY PROMISE

5. DEL. STARTED (ACT)

6. DEL. COMP. (ACT)

7. MATERIAL DESC.

8. MATERIAL QTY

9. DEVIATION NO.

10. MATERIAL:

A. CONSIGNED BY PARKER

B. SOLD BY PARKER

C. SUPPLIED BY VENDOR

11. MATERIAL PRICE IF:

A. CONSIGNED BY PARKER

B. SOLD BY PARKER

C. SUPPLIED BY VENDOR

12. OPERATIONS TO BE OMITTED BY VENDOR

13. TOOLS: PARKER PROPERTY

PARKER SUPPLIES

VENDOR SUPPLIES

SHIPPING MEMO

14. TOOLS: VENDOR PROPERTY

15. PRICE PER C.

16. PLUS TOOL CHARGES

17. PLUS SETUP CHARGES

18. APPROVALS:

A. FOREMAN

B. CHIEF PROCESS ENGR.

C. BRANCH MANAGER

D. DIVISION MANAGER

19. ADDRESS INITIAL ORDER SENT TO PURCHASING DEPT.

20. PURCH. INITIAL ORDER PLACED

21. ORDER ACKNOWLEDGED

THE PARKER APPLIANCE CO.

PART NO.

STANDARD QUANTITY

STANDARD COST

MATERIAL DESCRIPTION

MATERIAL SPECIFICATIONS

SPECIAL INSTRUCTIONS

WIB. STOCK

DELIVER TO:

VENDORS

1. DATE ORDERED

2. QUANTITY

3. REQ. BY

4. CHARGE

5. PRIORITY

6. REG. DEL.

7. DATE PROMISED

8. P.O. NO.

9. VENDOR NO.

10. ORDERED BY

11. COST

12. DISCOUNT

13. REMARKS

NAME

STD. COST

REMARKS

PART NO. OR SIZE

MATERIAL SPEC.

VENDORS

1. DATE

2. QUAN.

3. VEN. NO.

4. PUR. ORD.

5. PURCH. DEPT.

6. CHARGE

7. DELIVER TO

8. REMARKS

9. COST

10. DISC.

Parker's traveling requisition forms. The larger card (11 x 8") is used for productive parts and materials. One side provides a complete purchase record, with specification, special instructions, and alternative sources. The other side shows engineering information, consignment and tool records. The smaller card speeds buying of expense items.

larger central unit should make for more efficient utilization of personnel. There is no doubt that this can be a problem. Yet the fact is that Parker's five departments are no larger in the aggregate than single central purchasing units in companies of comparable size.

Mr. Krause, for example, gets along with the help of just one girl. Besides handling all buying and follow-up for centrally purchased items, he (like the division purchasing agent) is responsible for checking invoices and receiving reports against the order.

When a purchasing operation is essentially a "one man show", like that of Mr. Krause, time

must be carefully budgeted just to stay even with the job. Naturally, a good portion of the working day must be spent interviewing suppliers. In addition, there are meetings with personnel in other departments and a continuous stream of telephone calls.

### Time Saving Methods

All of these activities take time. How does Parker's purchasing keep from getting bogged down in routine duties and paperwork, and still carry out its other responsibilities efficiently? One way is through maximum use of repeating requisitions. Two different forms are used. One is de-

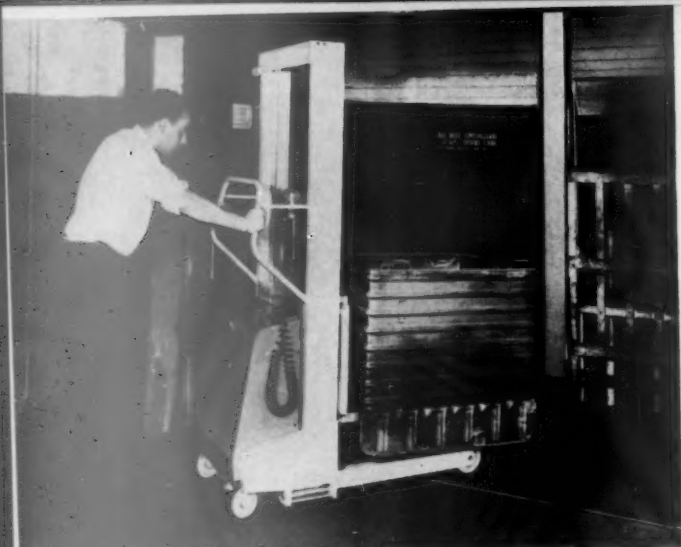
signed for expense items which usually are not bought to engineering specifications. The other is used for productive parts and materials; it has space to record tooling information and other necessary data.

According to Mr. Krause, these traveling requisitions have two basic advantages:

1. They eliminate the writing of a requisition for each buy.
2. They serve also as a purchase record card.

The second of these is probably the more important to the purchasing operation itself. The traveling requisition not only eliminates the need for keeping

(Please turn to page 302)



... where floor load capacities are limited. On this elevator, with a capacity of only 2500 lbs., a powered truck, with or without a load, would greatly exceed the capacity.

... at work stations. Portable lifts do a triple job—delivering loads to the machine, elevating them to working height, and positioning the pieces during the normal work cycle.



... where truck docks are not available. Portable lifts provide a convenient means of transferring loads to and from the bed of the carrier and at locations within the plant.

**IT'S PROFITABLE**

## PORTABLE LIFTS—

*an important, economical part of the complete materials handling system, with many useful related applications*

**By James C. Dangler**

Mgr., Material Handling Div.  
Oster Manufacturing Company, Cleveland, Ohio

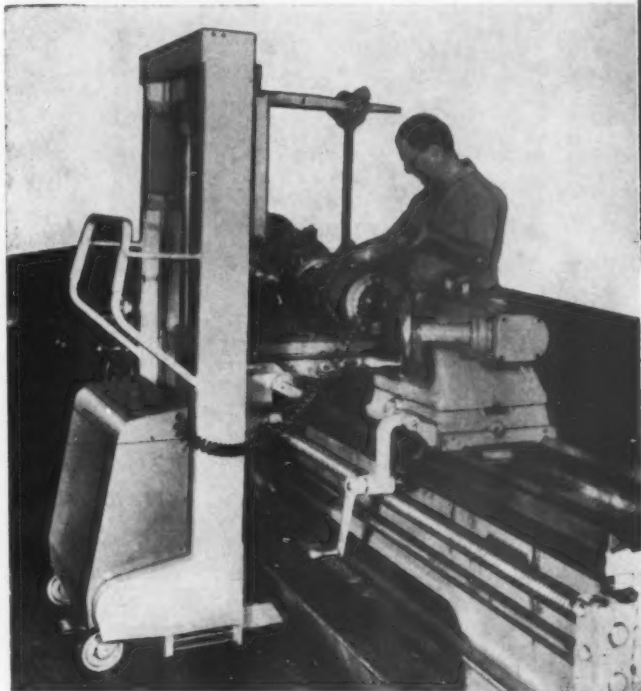
**M**ATERIALS HANDLING involves both vertical and horizontal movement of loads. Almost every plant and warehouse has applications needing the mechanized raising or lowering of loads, without the corresponding need for powered horizontal transportation. When such chores are assigned to more costly types of motorized industrial trucks, the misapplication of such heavy duty equipment is costly to management in high initial investment, high maintenance costs, and higher labor rates for special operators.

Portable lifts or hand stacking trucks are not intended to compete with either riding type or hand-guided motorized industrial trucks. Rather, they are designed to supplement the use of such equipment, or in some cases to be applied where it is more economical to use them. The choice



... in maintenance operations. Portable lifts provide increased safety for personnel. Operator has convenient, solid footing, can control his height accurately, ride with the work.

... in place of jib cranes. Here a heavy spindle is placed in a lathe for machining. This equipment gives added flexibility, as one carrier can serve several machines economically.



... in narrow aisles. Vertical movement is the big factor in order picking, etc., with ceiling high storage. The carrier can then be used for horizontal movement of the load.

## TO USE PORTABLE LIFTS

of when to use either powered industrial trucks or portable lifts must be made on the basis of total length of travel and frequency of lift.

For example, where a load must be moved 100 feet once or twice a day, it is not economical to use a powered truck. Where a move of this length is made once an hour, a truck which is powered for travel is a practical must. Wherever intermittent or continuous lifting is concerned, powered lift is likewise required.

Many companies condone the practice of having two or three men manually lift heavy loads and carry them short distances. Under such conditions, it would not normally be economical to call on a powered industrial truck, particularly because such equipment is often not immediately available, or because the distance over which the load is

to be moved is not great. On the other hand, portable lifts could profitably be called upon to eliminate the time consuming manual effort involved and the safety hazards inherent in such work.

In total, while powered industrial trucks operate most economically over a non-fixed path on a repetitive basis, it is not economical to utilize them for jobs that are only occasional, especially those involving short moves. On the other hand, portable lifts are most economical to use, even in one department only, on an intermittent basis where both lift and travel are required.

### How Lifts Operate

The portable lift is a platform truck, manually propelled for horizontal movement. The lifting mechanism is normally powered by (a) battery, (b) constant duty motor, or (c) hand-operated hy-

draulic system. Where light loads are handled on an infrequent basis, hand operated lifts are usually most practical. Where lifts are frequent, or where even occasional lifts are heavy, battery powered mechanisms are usually prescribed. Where lifts are almost continuous, as at a machine or work station, lifts powered by constant duty motors are practically a must.

As with other powered industrial trucks, portable lifts can be equipped with various types of attachments to increase their adaptability and versatility to a specific job or to a number of jobs within a plant. Such attachments include barrel grabs and dumpers, drum grabs, rams, roller tables, and many others.

The photographs herewith illustrate a variety of applications.

Portable lifts are widely used  
(Please turn to page 326)

# The P.A., the Salesman and

*The meeting of salesman and buyer is one of the most important contacts in the whole range of business. The complaint, on both sides, is that there just aren't enough hours in the working day for proper interviewing. Too often, it is this pressure of time that dictates interview policies, rather than the purpose of the interview itself.*

**By Gordon J. Groenewoud**

**T**IME spent in your lobby is unproductive and boring to the salesman. This is true despite the lush comfort your divans may offer—despite the assortment of current magazines you keep available—despite even the pulchritude your receptionist may display to the hungry eyes of weekend husbands.

There are more practical accommodations you might provide. Most all salesmen have reports to write. Have you made any provision that would help him spend his waiting time writing them comfortably? It is generally conceded that a salesman's dexterity is in his tongue and lower jaw. He is therefore limited when it comes to writing his reports while juggling his brief case, a catalog or two, and the odd assortment of envelopes and paper scraps on which most salesmen make their notes.

But the best accommodation is to grant him his interview just as promptly as circumstances permit.

Long delays are very damaging, percentage-wise, when the day's accomplishments are reviewed. There are times when delay cannot be avoided. The average buyer has such a wide range of contacts, both in his own company and with outside visitors, that it is absolutely impossible to serve them all without some delay.

In our social life, when we are detained, most of us recognize an obligation to notify our host, or the friend with whom we have an appointment, as to the length and nature of the delay. Unfortunately, this same rule of courtesy is not always carried over into business life. We all have a tendency to be a little like the chameleon, to vary our personality with our surroundings.

## **Too Little Time**

Perhaps the biggest single problem facing purchasing men is how to cover all the ground they must cover, see all the people they must see, and keep up with the constant load of desk work. It is a perplexing problem—one that will probably never be solved completely. Some purchasing agents have come to the conclusion that the only controllable factor in the problem is the salesman's call. So they limit such calls to specified days or hours, or both.

One cannot denounce this plan dogmatically because, particularly in high-volume industries, the visiting salesman traffic often gets so heavy that buyers can't touch their own productive work for hours at a stretch. But it is not the ideal answer.

Limiting the hours of call does limit the number of salesmen call-

ing. When the hours don't fit a salesman's schedule, he moves on. Frequently he moves on with a feeling of resentment, which may be reflected in his next call—if he does come back. Sometimes an inconsiderate salesman aggravates the problem by monopolizing too much of the buyer's time. All of us know salesmen who come in and act as though they have a 10-year lease on the chair they occupy. All the foot shifting, paper shuffling, and other commonly used tricks for speeding up or terminating the interview have no effect on them. The interviewing program runs behind schedule, and fewer salesmen get in to see the buyer during the allotted time.

## **Make the Time Count**

Fewer salesmen and fewer interviews are not the buyer's goal. Salesmen do help solve our problems, if we'll let them. But if they can't get in, they can't help us or themselves.

The better plan is to make full use of the interviewing time at our disposal. If we expect the salesman to speak his piece and move along, it is only right that we give him a fair audience. That means undivided attention to the subject under discussion during the time we have allotted for interviewing. In many instances,

# and the Interview



our chameleon personalities take over, and we conveniently forget how impolite we are when we continue to scribble assorted notes during the conversation. Some of us contrive to show a sympathetic face when in reality it is masking a brain that is busily calculating all sorts of unrelated problems. Are we fulfilling our liaison obligations to other departments when we follow either of these courses?

The interview often can tell much more than the bare product facts as presented by the salesman. Personalities, company policies, and other highly pertinent background facts can be picked up through an attentive attitude and some intelligent questions. Such an attitude presupposes two things—an open mind and an honest evaluation of the product being described. How else can you judge the merits of the product and its applicability to your plant or product needs? If the product has merit and applicability, and is such that technical or manufacturing personnel should be consulted, the next step is to arrange the direct contact with the user.

We all know that salesmen sometimes go overboard; they let their enthusiasm get the better of them. Very few buyers go overboard with them, because resist-

ance—the need to be convinced—is a necessary part of our work. But this, too, can be overdone, to the extent that many of us lose our imaginative approach. We forget that the idea that is considered radical today often becomes the accepted thing tomorrow. Progress is never made without imagination. We need more of it, rather than less.

## The Question of Lunches

There's one more hour that comes into this problem of time—the luncheon hour. Here the problem assumes different proportions. One cannot be too cautious, lest he became innocently obligated. It is impossible to draw hard and fast rules about little gifts, courtesies, lunches, etc., because in spite of all the rules, it is the intent, the integrity, and the foresight of the individual that either creates problems or avoids them.

Some companies frown upon any social associations between buyers and salesmen. This rigid policy ignores one basic human trait—and a very fortunate one—that mutual interests and dealings foster personal friendships. And we all know what happens under a policy of strict prohibition.

Every company has suppliers who are like old friends. Those friendships are among the most valuable assets of a purchasing

department and of a company. The ties of friendship are strengthened through day-to-day contacts over the years. But friendship is not a one-way street. To make and keep friends, we have to be friendly ourselves and cultivate business friendship. Business has far too much formality. When we try to reduce all of our contacts to a purely rational basis, we are likely to defeat our own ends.

Some companies insist that their buyers pay their share of expenses, where business lunches are concerned. This is surely an admirable attitude and can be a big step toward good, sound supplier relations. But most salesmen object to it at the outset, perhaps because it is unusual. Sometimes the buyer has to resort to some ruse, the first time, to accomplish his intent to pay. As a general rule, this will convince salesmen that the intent is genuine, and they protest less vigorously on succeeding occasions. It is an interesting experience to observe salesmen's reactions when they realize that their lunch bill has been paid.

A salesman for one of the giant corporations has steadfastly refused to allow his customers to pay at any time. It is a matter of principle with him. He often

(Please turn to page 324)



We hit the jackpot in . .

## Cutting Packaging Costs

**By Hugh R. Johnson**

Purchasing Agent, DeWalt, Inc., Lancaster, Pa.



Hugh R. Johnson

**I**N OUR SEARCH for a single saving in packaging, DeWalt recently hit a cost-cutting jackpot by turning up five additional cost-saving factors, plus additional valuable fringe benefits.

DeWalt manufactures a complete line of industrial power saws and home workshop units. They are shipped complete with table and legs, and weigh an average of over 600 pounds. Needless to say, it's essential that a heavy and valuable piece of equipment such as this gets to market in perfect condition.

A little over a year ago our department set out to solve a typical purchasing problem—to find a container that could do as good a job as the one we were using, at less cost.

A year has now passed since we found "the" container which we felt could do the shipping job and save us a bit of money. But that initial cost saving, instead of being the end of our story, is only the beginning.

For some time previous to our decision to start shopping for a new container, we had been in touch with a representative of

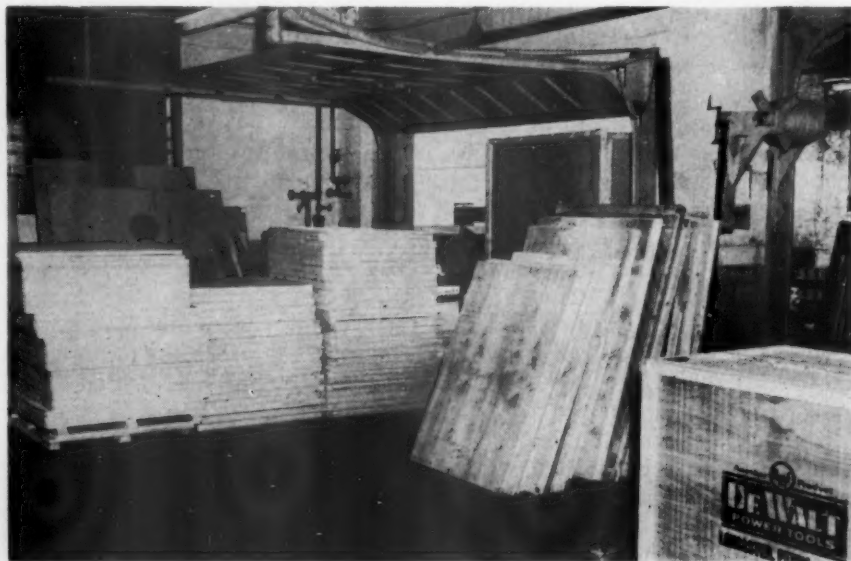
Atlas Plywood Corporation. We knew, in a general way, that their plywood shipping containers would probably do a good job, but we were very pleasantly surprised when he figured that we could ship in plywood cases and still save money.

1. First step was to send one of our units to Atlas' testing labora-

tory. There it was subjected to the grueling Safe Transit tests. They designed and recommended a completely enclosed plywood shipping container which, to our surprise, cost 15% less than our former partially enclosed container.

Here's a run-down on those additional savings.

Initial cost saving —15%





Assembly time—down 30%.



Container shipping weight—down 10%.

Export crating cost—down 60%.



Vertical storage—up 50%.



2. Better protection. Although we kept no detailed records of actual damaged shipments, we formerly had quite a few cases of damage claims resulting from container breakdown. That breakdown has been completely eliminated with our new type containers.

3. On a direct dollars-and-cents basis, we effected a reduction of more than 30% in assembly time.

4. Shipping weight was also reduced. On export shipments this saving amounted to 10%.

5. The foreign shipment category also provided a fifth bonus saving. Formerly, our export containers had to be all hand made. Now, we order our export containers to approximately the same specifications as the domestic model, except that the plywood is of greater thickness. This enables us to pass along to our export customers a saving of 60% in crating expense.

6. Like most manufacturers, we have the ever-present problem of storage. The greater strength of the new containers allows us to stack 6-high, as against the 4-high that was formerly possible.

There are additional benefits

that can't be measured in dollars and cents. The fully enclosed plywood container covers the machine completely—top, bottom, and all sides. This enables us to send a cleaner product to market. For us, it eliminated the need for a paper shroud which we formerly used. Dealers appreciate receiving the product in factory-clean condition.

Last, but not least, we are now

utilizing the broad, flat spaces on the new containers to imprint a large DeWalt trademark, which was not possible with the old container. We like to call this "bonus advertising."

So our search for a single cost saving has mushroomed into six actual cash savings, plus those intangible fringe benefits which are always important to any alert management.

# Preparation for Purchasing

... the Job

... the Man

... the Training

**By E. M. Krech, Director of Purchases**

J. M. Huber Corporation  
New York

**E**ducators are asking:

What type of college training is required, or is best suited, to prepare for a career in purchasing? In what schools or departments of a university should courses in industrial purchasing be taught?

Interested students want to know:

How can I best prepare myself for a career in purchasing?

Personnel managers and top management executives are pondering the question:

What type of individual, with what sort of training, is most likely to develop into a capable buyer and a good company man, at the same time using his office to increase the stature and prestige of the company in the business community?

Here are one person's ideas on this important subject.

Before discussing educational and personality requirements, let's review the basic purchasing functions. First and most important is buying. It involves:

1. Interviewing salesmen.
2. Reviewing and distributing literature on materials, new products and developments.
3. Assisting in selection of materials to satisfy requirements.
4. Selecting vendors.
5. Ordering and expediting.

Second is inventory control. This involves quantity determination, judgment in timing, and possibly some record keeping.

Third is administration. This involves organizing and executive ability and managing personnel.

## **What Is the Ideal Educational Background?**

To prepare for a career in purchasing, a student can profitably plan his college education by a careful analysis of the above functions and an equally careful study

of the courses offered at various colleges and universities.

I believe that any one of three major divisions of college education with properly balanced and selected courses can provide a good foundation for purchasing. These are: engineering, liberal arts, and business administration. Each offers specific advantages, and each has disadvantages.

Let's take engineering first. Either mechanical, chemical, or industrial engineering can provide the technical background for purchasing. Many of the required courses would assist the individual in acclimating himself quickly and effectively to industrial processes and their material requirements. However, there are other courses which would be of little or no help to a buyer. Also, it would be essential to take as many elective hours as possible in the liberal arts and business administration schools as the particular division of engineering would permit.

The advantages of an engineering education are:

1. A better than average technical background, which would be valuable in specific areas of procurement.

2. A well trained mind, with a solid understanding of precise thinking.

3. An ability to evaluate technological advancements and their



Mr. Krech is eminently qualified to discuss the educational and personality qualifications for success in the industrial purchasing field. He is a graduate engineer, with practical experience in a responsible purchasing position. He is instructor of the purchasing courses at the Stevens Institute of Technology. He is an active member of the Purchasing Agents Association of New York, and is currently serving as President of that organization.



possible application to specific operations.

The major shortcomings of an engineering education are:

1. A lack of liberal education which is so essential in understanding and dealing with people. The field of industrial purchasing involves human relations and communication to a very pronounced degree.

2. The failure to provide the student with training in the fields of economics and business.

In industrial purchasing, a buyer must have a working knowledge about a multitude of items, materials, and processes. The average company purchases thousands of different items for a variety of uses and applications.

The more varied his educational background is, the more efficient a buyer will be in his approach to these assignments. Therefore technical specialization in college is not recommended.

A buyer with technical training is likely to try to force his opinions on others who are better qualified to determine the right quality or specification. Thus he may create friction and resentment instead of teamwork and efficiency.

#### **One Alternative**

Now let's examine the program of the business administration schools. Here I find a definite di-

vision in the thinking and programming of various universities. Many offer business administration only at the graduate level. This policy is apparently finding more and more support in educational circles.

The weaknesses of the undergraduate curricula as a foundation for industrial purchasing are a lack of basic mathematics, science and engineering, together with a number of required courses in fields of business which have only a casual relationship to purchasing and do not contribute to preparation for buying responsibilities. However, the student does get a more liberal training than the engineering student. Again, he can do a lot to assist his training by thoughtful selection of elective subjects.

#### **Best of Three**

The liberal arts student can do a fine job of preparing himself for industrial purchasing. He must major in one field of his own selection. For example, a major in chemistry would be extremely wise. A good foundation in chemistry (though short of specialized chemical engineering) would be valuable to anyone in industrial purchasing because it touches on so many of the things we buy. Then, too, it is the field of greatest development of new products and processes. He could then back this

up with courses in mathematics and physics.

His courses in the liberal arts field are far more numerous than either the engineering or business administration students have to choose from. They would include English, philosophy, psychology, history, literature, and speech. In addition, the liberal arts student can take business courses such as purchasing, accounting, economics, money and banking, corporation finance, taxation, marketing, business organization, and law.

**I firmly believe that the well and thoughtfully prepared liberal arts student has the best opportunity to progress up the business ladder to the management level.**

He is well grounded in the fundamentals of the sciences, humanities, and business, rather than trained as a specialist. He can increase his knowledge and gain his experience on the job with the assurance of a solid foundation of useful information, a broader perspective, and a better understanding of his fellow men.

#### **Ideal Program**

Many college students have great difficulty in obtaining sound counseling from faculty advisers. These men, however well intentioned, tend to urge all students to confine their studies to their chosen field of education. Sometimes they are unfamiliar with

the variety of opportunities awaiting college graduates entering the business field, and minimize the advantages of a broad education that would fit the student to accept these opportunities. Their guidance, by and large, has been pitifully weak in the field of industrial purchasing. Consequently undergraduates frequently fail to get the maximum value from their formal education.

This situation has been recognized by many universities. As a result, industrialists are invited to lecture to undergraduates on the opportunities available in industry. Our own National Association of Purchasing Agents is struggling to overcome the lack of perception of the opportunities in our chosen field.

To summarize the education requirements, I would recommend as an ideal curriculum a balanced course of study as follows:

30 credits in the sciences — mathematics, physics and chemistry.

40 credits in liberal arts—including English (grammar, reading, and prose composition), philosophy, psychology, history, literature and speech.

40 credits in business—distributed among courses in accounting, economics, finance, transportation, taxation, marketing, purchasing, and law.

20 credits in engineering — materials, industrial organization, metalworking and elementary electricity.

Undoubtedly a student would have to modify this suggested curriculum due to individual college restrictions or limitations. It can, however, serve as a guide.

#### **What Are the Necessary Personality Characteristics?**

Heading the list of essential personality traits is integrity. Since purchasing departments spend roughly 58 cents of every dollar of the company's sales income, on the average, their responsibility is enormous. The competition for a share of that expenditure is keen. Sellers resort to all sorts of devices to sell their products. One of the most vicious and offensive is the use of elaborate entertainment and gifts.

One cannot blame the salesman

who tries, with the slightest encouragement, to carry entertainment and gifts to extremes. One can only blame the recipient who jeopardizes his integrity, his company's profit and his own career by permitting himself to be compromised by such actions.

#### **Working with Others**

A buyer must like to meet people. Salesmen recognize this trait promptly, and respond with help and information. A buyer with a cheerful, courteous, cooperative attitude builds good will and respect both for himself and for his company. Good will can often save the day when there's trouble.

This same attitude on the part of the buyer helps tremendously in maintaining the confidence and cooperation of other departments within the company. Each operating department has problems which the buyer should recognize and help solve. Such an approach makes for pleasant working conditions and larger profits.

#### **The Inquisitive Mind**

Successful purchasing demands a few special personality characteristics. One of these is an inquisitive mind. The buyer must always ask: Why? How? When? Where? How much? Constant probing for answers to these questions is bound to result in more intelligent buying.

This probing can take several forms. First is intensive reading. A buyer must be an active and rapid reader. This is essential if he is to keep up to date on new developments, products, methods, and equipment.

Second is a policy of regular visits to the company's plants and operations. Here the buyer can see and learn how and why the things he buys are used. He can get to know personally the people using the things he buys, and obtain first-hand information from them as to why, how, and where.

Third are periodic visits and discussions with personnel in the engineering, sales, traffic, export, finance, production, and legal departments.

Fourth, modern purchasing executives urge their personnel to visit supplier plants to see at first hand how the things they buy are

made. This also gives them a picture of suppliers' problems which might increase costs. Frequently, modified specifications develop from such visits which lower costs and increase efficiency.

#### **Some General Characteristics**

Like the engineer and the accountant, the buyer must have an analytical mind. He is continually faced with the problem of evaluating information and data in order to determine the "best buy". Ability to analyze means more and better decisions. Pity the buyer who lacks this ability. He will never be able to carry his share of the work.

Another "must" for the buyer is thoroughness. This is essential if he is to avoid half-correct decisions. Time and the pressure of other duties combine to make it difficult to complete the study of a problem. Failure to do so may be much more costly than the delay involved to complete the study.

Finally, a buyer should be ambitious. He must be alert, eager to learn, and willing to work hard to improve his knowledge and performance in the light of company needs and objectives. Purchasing is a dynamic occupation. It is expanding in scope and growing in importance. It has little room for the buyer who is satisfied with the *status quo*. Top management wants men and women who have the willingness and capacity to successfully handle increased responsibilities.

#### **Do You Agree?**

Now, before turning to something else, turn back and re-read the review of basic purchasing functions at the beginning of this article. Evaluate the suggestions in relation to the job responsibility. Do you agree that this outline of educational and personality requirements for purchasing is sound?

If not, don't just pass it off. Let me hear your side of the problem. There is much to be learned about this matter of personnel and training for purchasing, and much room for constructive thought and action. It is important to us, to our companies, and to the future of our profession.

# Purchasing Equipment for a Plastic Molding Department

*Some basic factors of initial installation, auxiliary equipment, and comparative costs to be considered before making a decision on the economics of "do it yourself" policy*

**By D. A. Dearle**

Photographs by courtesy of Aldrich Pump Co., Chicago Molded Products Corp., Improved Paper Machinery Corp., Lupomatic Polishing Equipment Corp., Northwest Plastics, Inc., Stokes Machine Co., and Van Dorn Iron Works Co.

**T**HE STEADY INCREASE in the use of plastics during the past several years has of course been accompanied by a constant encroachment into many other phases of manufacture. The inroads made by molded plastics have now reached a stage where many well established industries are presented with a serious problem. It is no longer possible to ignore the competition of the relatively new synthetic materials. Many cautious executives who have been watching small portions of their business being gradually nibbled away by substitution of one or another of the molded products have come to realize that in order to compete they must either buy plastic parts or make them in their own plants.

This poses the familiar policy question of "Make or buy?" Would it be profitable to establish a plastic molding department or division, or would it be better to rely on custom molders to supply the needed plastic parts? There is no general answer to

this query. It depends upon the specific circumstances of the individual case and upon a comparison of production vs. purchase costs.

At the outset, it should be made clear that the small manufacturer who finds it necessary to buy perhaps two or three plastic parts ought to dismiss any thoughts of entering the molding business as a procurement device. The nominal savings to be derived from such an undertaking would not compensate for the investment required. This will be apparent after even a cursory consideration of the cumulative expenses that are entailed. It is therefore the manufacturer with large requirements of plastics, or perhaps the concern with ample resources, which should think of entering the molding business with a hope of making such a venture financially worth while.

Even a large organization must think twice before taking any definite steps in this direction. A brief insight into the various

types of plastic molding equipment required will serve to point out the numerous factors that must be taken into consideration.

## **Methods of Molding**

The plastic molding presses now on the market are quite diversified so that careful selection is needed. All machines are expensive, and so is the auxiliary equipment.

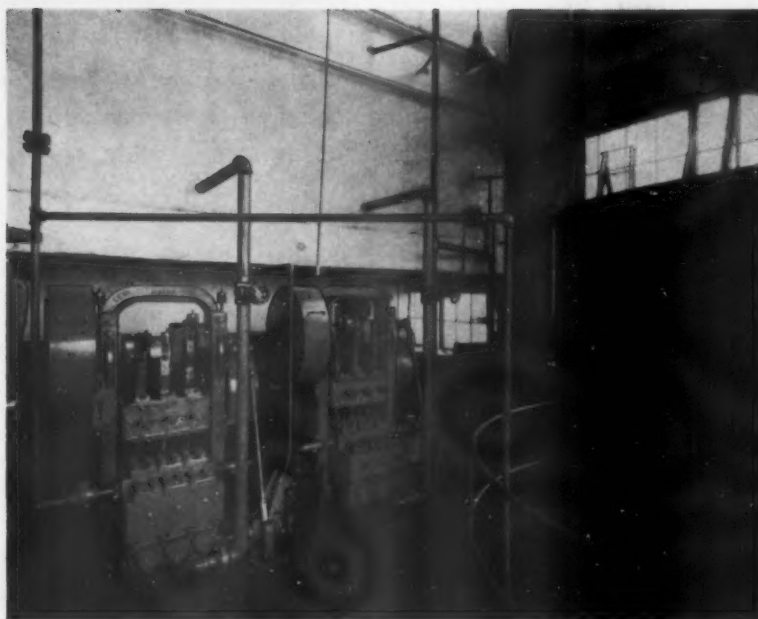
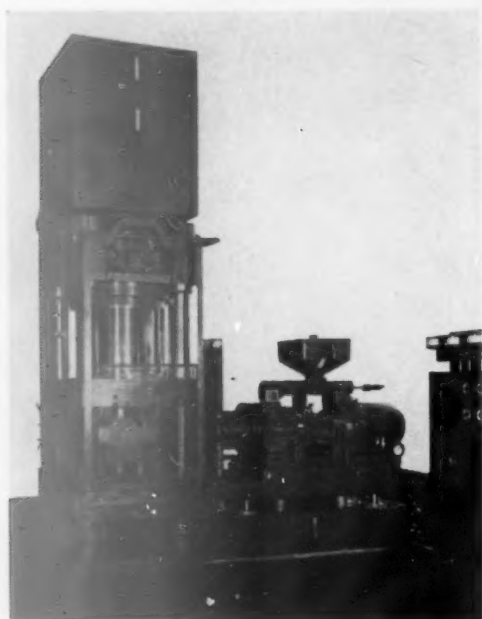
For compression molding, which is the process used in making parts of the so-called thermosetting materials, there are two fundamentally different types of presses. One is the standard type of hydraulic press, deriving power from a remotely controlled power house. The other type is self-contained; it requires no extensive system of auxiliary piping, compressors, accumulators, and pumps. The self-contained type, although more costly per unit, is often the most economical for the concern which plans to utilize only a half dozen or so presses for its total output. The





Plastic molding presses come in a wide range of sizes and capacities, and your selection depends on whether you are going to fabricate television cabinets or small instrument parts, as shown in these photographs.

In the small department, versatility may be gained through use of combination machines capable of both compression and injection molding.



System-type installations, in contrast with self-contained molding equipment, involve a substantial initial investment in auxiliary piping and controls. Size of the projected department and the possibility of later expansion have an important bearing on the relative economy of these two basic alternatives.

only power requirements needed to operate a self-contained press are electricity and compressed air. If the molds are to be heated with steam, then of course such a supply will also have to be available.

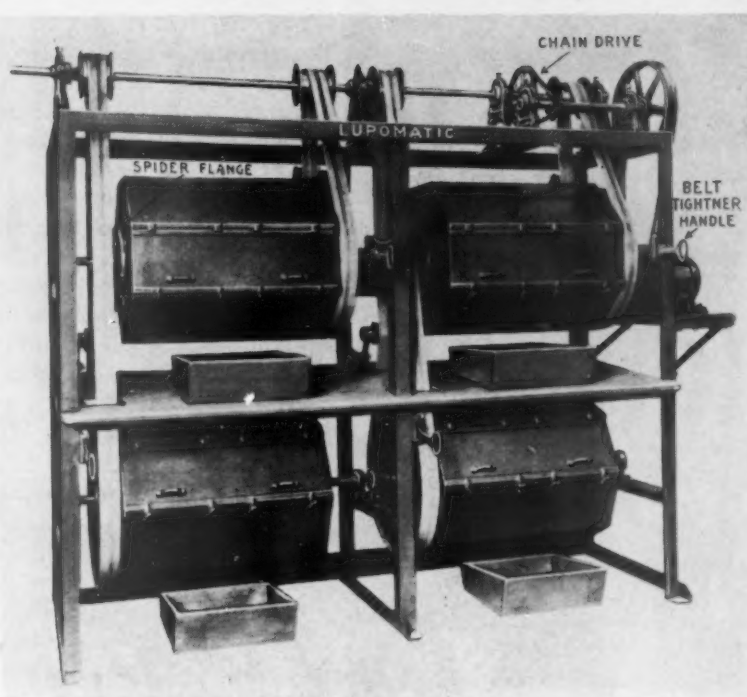
Compression presses, although capable of handling thermoplastics as well, are used chiefly to mold the ureas, phenolics, and melamines. A chemical change occurs in these thermosetting materials as a result of combined heat and pressure, whereas the

thermoplastic or injection materials undergo a physical change only. The resultant products vary in their characteristics, and therefore the kind of processing to be used is governed by the ultimate application of the piece.

Injection machines are used solely for producing parts of the thermoplastics. In operation they compare to some extent with the self-contained compression press, but the injection molding process, as well as the resultant product, is quite different. In the injection

process, the material is heated to a state of liquidity and forced under high pressure into a cool mold where it hardens into the desired shape. Compression molded materials, on the other hand, are placed manually into heated molds, compressed by the subsequently closing of the press, and ultimately ejected hot.

In the majority of instances, the concern contemplating the establishment of a plastic molding department should consider the purchase of both types of



In calculating initial investment, don't overlook the fact that some auxiliary equipment may be required in addition to the molding presses. Shown here are a grinder for reworking thermoplastic scrap and tumbling barrels for finishing plastic parts. You may also need preforming machines and heating ovens.

equipment. Only in this way will it be able to cope with the diversification of product demanded. It should be noted that injection molding is much more rapid from a production standpoint than compression molding, but injection molding materials cost more. There has been an increasing demand for both the transparents and the flexible types of finished product produced by the injection process. On the other hand, the fact that thermoplastics do not withstand high temperatures tends to limit their utility, whereas compression materials can be produced with varying degrees of heat resistance, strength, and other valuable properties. So it can be seen why it may be essential that both types of presses be installed, or that a combination press be purchased as an initial move.

### Compression Presses

As previously noted, compression molding equipment comprises two kinds of equipment—the self-contained press, which is an independent unit with motor, pump, and oil as integral parts of the machine; and the system

type press, deriving its operative power from a central, remotely controlled pressure system. On a ton for ton basis, the self-contained presses cost more, but to offset this additional cost is the fact that they require no accumulators, pumps, and auxiliary piping.

For a hypothetical example, assume that six compression presses are being considered for initial molding requirements. On the basis of \$10,000 each for self-contained presses, the total investment would amount to \$60,000. If system presses were to be installed, the cost of the six would be in the neighborhood of only \$36,000. However, the cost of installing a complete accumulator system with auxiliary pumps and piping would probably add another \$40,000. Thus comparative costs indicate that the company would save about \$16,000 with the self-contained equipment.

However, if future plans include the possibility of further expansion in the plastics field, the selection of system type presses might show more favorably. For example, twelve self-

contained presses might cost in the vicinity of \$120,000, whereas the cost of \$72,000 for twelve system type presses, plus the \$40,000 for the accumulator, would tilt the scales in favor of a system type installation.

### Auxiliary Equipment

If it is decided that self-contained presses will be used for compression molding, very little additional equipment will have to be purchased. In some instances it becomes necessary to buy preforming machines and heating ovens, but in the majority of cases such equipment will not be needed at the outset. Large custom molding plants are able to save money by preforming the powders, but because of the high speed of these machines in relation to the presses, the departmental molder might find himself loaded down with expensive machinery which is used too infrequently to make the investment worth while. There are exceptions, of course, such as where a particular mold or group of molds has been built with insufficient space for powder loading. In such cases, preforms



Mold design and die costs have a continuing effect on the productivity and economy of the operation. This toilet seat is produced from a single cavity compression die.

would have to be used, or the dies would have to be redesigned.

Molding materials are poor conductors of heat; therefore, any preliminary heating will reduce the curing time of a compression molding cycle. Preheating the molding compounds will also lessen the amount of trapped gas during the molding process. Purchase of preheating ovens is often advisable to alleviate these two conditions. In the case of very thick cross-sections in the design of a part, the curing time may have to be exceptionally long. In such instances a preheated material would save a great deal of cure time and justify the purchase of an oven.

However, there are factors that offset the savings to be derived. With the use of ovens, for example, the added operation of placing charges into trays takes a certain amount of time which is not available to the man who may be operating two or three self-contained presses. Most of his time is usually occupied in filling the cavities or blowing out the pieces and excess flash.

In any molding department, one or two injection machines will undoubtedly be needed. These machines come in a wide range of sizes and capacities. Combination compression-injection presses are quite practical for concerns where a limited amount of capital is available for the purpose of molding both thermosetting and thermoplastic materials. The purchase of one combination type press makes it possible to do both compression and injection molding in a comparatively small area.

In the operation of injection machines it is necessary that certain auxiliary equipment be bought. Since no chemical change occurs in thermoplastic materials during the molding cycle, all excess material or rejected parts—theoretically, at least—may be used over and over again. Sprues, runners, and gates are made with every cycle of the machine. This excess must then be regranulated before being run through the heating chamber a second time. This necessitates the purchase of a grinder, which should be selected with the thought in mind of gaining sufficient capacity to take care of the scrap as well as the pieces of reasonably heavy cross-section.

Heating ovens are needed for removing moisture from the thermoplastics. This is not optional equipment as is the case with the thermosetting compounds. Materials run through the cylinder of an injection machine must be dry for economical molding.

The only other auxiliary equipment required for injection molding is a heating and cooling circulatory system. Both hot and cold water must be available to maintain correct temperatures on the molds.

Mention should also be made of the need for compressed air. Air pressure is seldom used for injection molding except for the occasional cleaning of the powder chute and granulating machine. In compression molding the operator uses a considerable amount of compressed air in blowing out the molded parts as well as in cleaning the dies at the conclusion of each cycle.

It is really not necessary to buy much expensive finishing equipment for plastic molded parts. Today's tumbling barrels have been developed to a very efficient stage. Not only do they remove excess flash, but, by the use of shoe pegs and polish, they are capable of imparting an excellent luster to molded pieces. Other machinery required for the average plastic molding department might include conventional vertical or horizontal sanders, drill presses, and perhaps double-end wheels for grinding or polishing large parts. Kick presses for blanking or punching slots and holes are also used to advantage for some applications. Aside from these machines, the only other tools necessary would be hand files, punches, and measuring gauges.

The finishing of injection molded parts presents a different problem. This operation comprises the removal of gates. The method used depends upon the design and size of the molded part. Specially designed hand clippers are used extensively, and these tools are the least expensive in purchase cost. In some instances it is found more economical to buy special equipment such as double-blade kick presses or rotating blade machines. Sometimes the molded parts may be touched to a specially prepared abrasive wheel, but this has to be done expertly to avoid burn marks.

With pinpoint gating on the dies, the pieces produced do not need any gate cutting at all. Many of the modern dies are also designed so that the gates are sheared off automatically each time the press opens. Because of the glossy appearance of molded thermoplastics, it is rarely necessary to resort to either tumbling or hand polishing.

### Molds

Purchase of the steel molds for producing plastic molded parts is one of the most important aspects of such an enterprise. All dies, whether for compression or injection molding, are expensive, and the success or failure of a venture into departmental molding depends upon correct mold

(Please turn to page 330)



# What the Auditor Wants to Know about PURCHASING

*At the recent Midwest Conference of the Institute of Internal Auditors, at Madison, Wisconsin, a purchasing man was invited to answer a series of questions about purchasing policies and procedures. Here's what the auditors wanted to know, and how their questions were answered. . . .*

**By J. W. Nicholson,** City Purchasing Agent, Milwaukee, Wisconsin

**Should all purchase orders carry a price? If not, when should price be omitted?**

Purchase orders need not carry a price when a term contract is in effect. If such is not the case, and if it is difficult or impossible to obtain a definite price, purchase orders should provide protection to the purchaser so that the price shall not exceed price on the previous order; or shall not exceed the *Journal of Commerce*, *Wall Street Journal*, or other recognized posted price for the commodity on the date shipped; or some other protection.

If this protection is not stipulated in the un-priced purchase order, a vendor may charge whatever price he sees fit, and the vendor has no recourse except to blacklist him and change sources. It is, therefore, important that some ceiling be placed on the dollar value of the purchase order.

**What are some good tests of prices paid for materials, where bids are not on record?**

Good tests of prices paid for materials, where bids are not on record (and I deplore any such conditions, as all bids should be on record) may be made by reference to reliable published commodity price tabulations. These are available in a number of daily and weekly business publications, as well as from government sources and private business services. Or, you may send out a series of bid requests from time to time, to check.

In public purchasing, all bids are required by law to be made a matter of public record. I real-

ize that industry does not wish its competitors to know from whom they buy, what prices are paid, or what other conditions relate to their purchases. But this should not prevent their purchasing departments from obtaining competitive bids and making a record of these bids, nor should it prevent their purchasing agents from making reports to management giving salient information on purchasing operations, including tabulations of important bids.

**What is the best method for an internal auditor to follow in confirming purchase costs with vendors?**

If competitive bids are received and examined in the light of market conditions, it should not be necessary to examine a vendor's books to learn his costs. In our system of free enterprise, it is presumed that a vendor may use his privilege to quote any price he deems advisable, be it above or below cost. Competitive bidding is the means whereby a purchasing agent may obtain the lowest or best responsible bid.

In negotiated bids, other factors than cost are also considered. As used by the federal government in wartime, the policy of negotiated bids was adopted (1) to expedite purchases and (2) to place purchases with concerns in various parts of the country which were in need of business to keep their men employed. Item (2) has sociological aspects which should not enter into the purchases of industries and local governments. Neither should reciprocity affect purchasing policies; it is not justifiable, and leads to unprofitable results.

### **How do you establish control of local pick-up orders?**

Monthly requisitions and orders should be issued to departments which are to pick up repair items. None of these purchases, however, should be made for stock, and all invoices for monthly purchases should be carefully examined by the purchasing department to see that this policy is complied with.

### **Should the purchasing department issue purchase orders for the purchase of advertising promotion material which is handled by the advertising department?**

The purchasing agent should review these orders and question any on which he believes he could effect a saving.

### **What are some practical safeguards against "kickbacks"?**

This question can be properly appraised and answered only with a knowledge of the background of the purchasing profession. The National Association of Purchasing Agents, organized in 1915, comprises more than 80 local chapters, with a total membership exceeding 15,000. A strict code of ethics has been established, to which all affiliated chapter members subscribe. Educational programs rank high among the Association activities. For example, in the Milwaukee Association, in addition to the monthly meetings, professional seminars are regularly conducted, as well as a full credit evening course in purchasing at Marquette University, sponsored annually since 1935.

In the early days of our purchasing organization, some skepticism was evidenced by the general public concerning the ethics of purchasing agents as a species. This was prior to the professionalizing of the purchasing function in business administration. The development of professional standards, and the desire to increase our value to our employers, created an incentive which resulted in attracting and developing an association of men of high character, integrity, and ability.

In like manner, other purchasing associations such as the National Institute of Governmental Purchasing, the National Association of State Purchasing Officials, and their affiliated chapters have also raised the standards of purchasing throughout the country. These facts are mentioned here because the question suggests that some people still labor under the misapprehension that purchasing ethics and policies have not kept pace with the progress in other organizations and other fields.

It is no doubt true that there is an occasional "bad apple in the barrel". This is pointed up when unsavory business practices are exposed from time to time, as in connection with some

federal positions of trust. The inference is then drawn that these things must also apply to many persons of trust in all levels of public service as well as in industry. Thus the innocent suffer in reputation along with the guilty.

In view of the Association record, no inference should be drawn that any of our members fail to live up to the high ethics of our profession.

### **Is the acceptance of gifts by purchasing agents regulated to a degree that the practice does not get out of control?**

As you doubtless know, it is a fairly general custom in industry for a company to send gifts of nominal value to its customers at Christmas time. In many cases, if not most, these items carry the name or the advertising of the company. The purchasing agent can readily judge whether these, and any other nominal gifts, are made for the purpose of influencing his buying judgment.

It is my personal opinion (shared by many other purchasing agents) that Christmas gifts in a business relationship are a nuisance. The National Institute of Governmental Purchasing has gone on record as being opposed to them. In an effort to terminate the practice, some industrial purchasing agents send notices to their suppliers to the effect that they do not wish Christmas gifts to be given to any of their employees. I think this is a good plan to follow.

### **What steps, if any, can and should internal auditors take to determine the extent of kickbacks and gratuities to purchasing agents and to minimize the effects of these undesirable practices?**

This problem is basically a matter of the character and ethics of the individual concerned. Therefore I suggest:

(1) Before employing a purchasing agent, have him investigated as thoroughly as the F.B.I. investigates any potential federal civil service employee. This includes checking into his personal habits, affiliations, whether he has a police record, how he spends his spare time, who his associates are, etc.

(2) After selecting a man of unquestioned integrity and character (as well as ability and experience), he should be required as a part of his professional duties to become an active member of a purchasing association.

(3) When you audit his department, from time to time, it would again be in order to inquire generally as to his position in the community, his interests, associations, and service activities.

Secondly, I suggest you determine how widely he is making use of competitive bidding procedure. A full competitive bidding system, on the

(Please turn to page 300)

# The Pulse of Business

FEBRUARY, 1956

## **PURCHASING'S** **Summary of** **economic** **conditions**

Is the boom in consumer durables that has carried the economy to new heights slipping? There are some signs that it is. For the first time in more than a year, weekly auto output is well below its year-ago level. No one close to the industry seems brash enough to predict that 1955's 1.3 million housing starts will be topped this year. Though it may not be significant, department store sales have been below their year-ago levels the past few weeks. Though it's hard to measure, price cutting at retail seems more prevalent than ever.

One good reason for a slowdown in consumer spending is the record debt. Last year it went up about three times as fast as personal income. Obviously, this trend could not be projected indefinitely.

Despite these dark clouds, steel mills (and other metals producers) can't ship enough to satisfy demand. Their backlogs continue to grow. The underlying reason for this is not more demand for consumer goods (though it's still very high). Instead, it's higher demand for capital goods.

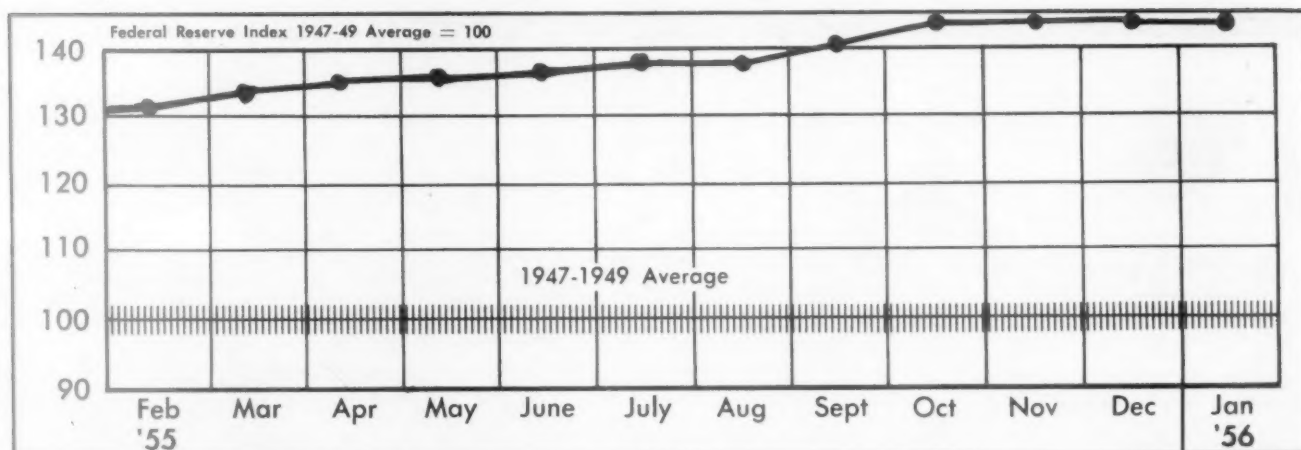
A new kind of boom seems to be developing. It's being nourished by expansion in capital goods, not consumer goods. One good clue is the new order index of the National Machine Tool Builders Association. The latest figure is 432.7; exactly a year before it was 119.5. Also, the order backlog of the machine tool industry has more than doubled. Industry is expanding for two reasons: First, it is optimistic about future demands for its products. This was forcefully brought home by the announcements by General Motors and the steel industry of expansion programs costing \$2.2 billion in the next few years. Second, keen competition is forcing heavy investment in cost-cutting tools and equipment.

We now seem to be making a transition into another kind of boom without even suffering the mild pain of another 1954. This is without precedent in our economic history. Yet, there's no sign that we won't do just that. According to Dr. Arthur Burns, chairman of the Council of Economic Advisers, "We stand at the threshold of a \$400 billion economy."



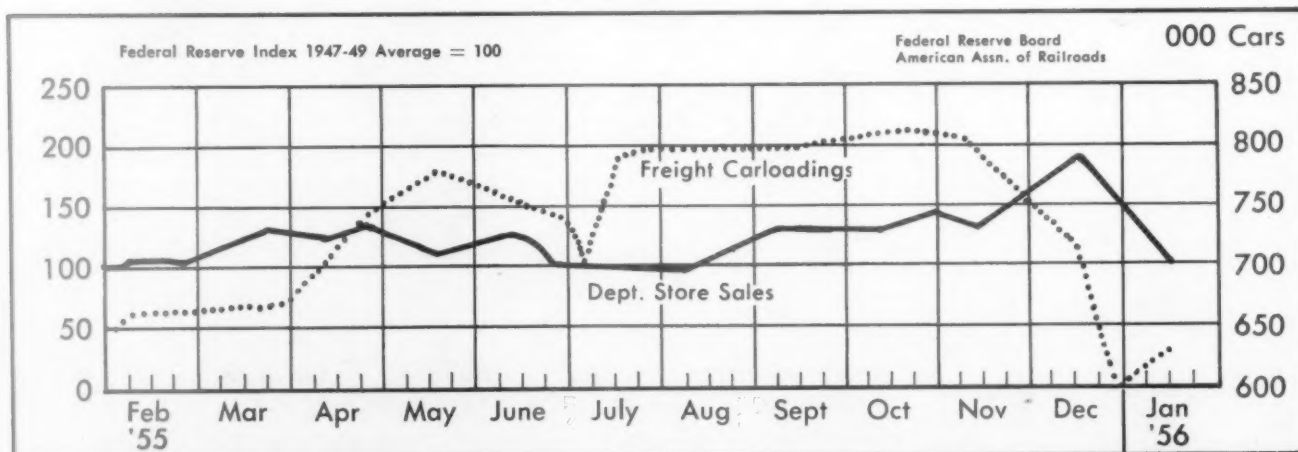
## THE PULSE OF BUSINESS

### PRODUCTION



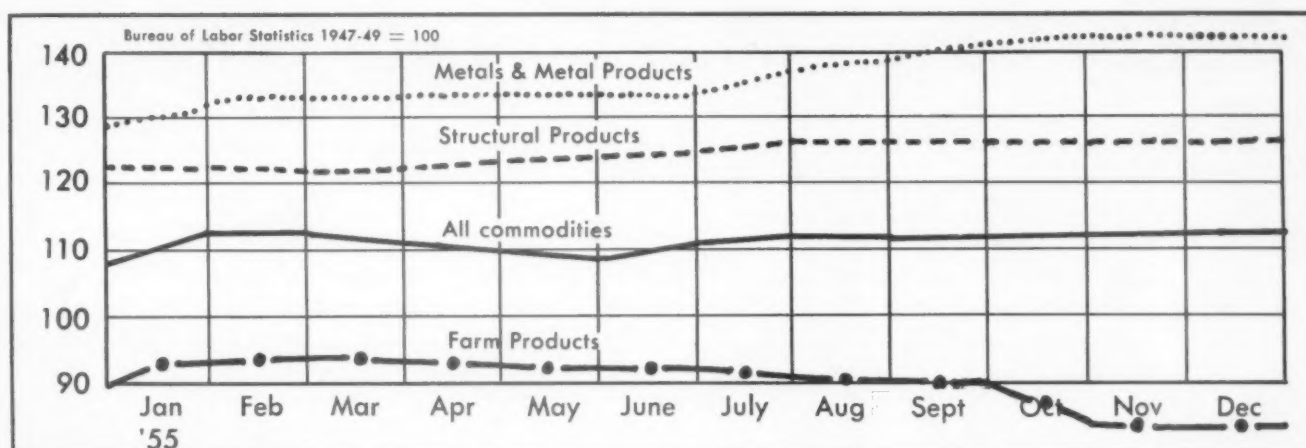
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index .....	1947-49=100	144	144	130	0	+10.7
Steel Production (Weekly) .....	000 net tons	2,388	2,384	2,007	+ 0.1	+19.0
Electric Power Production (Weekly) .....	mil KWH	11,057	11,359	9,833	- 2.6	+12.4
Bituminous Coal Production (Weekly) .....	000 net tons	9,265	10,460	8,510	-11.4	+ 8.9
Auto, Truck & Bus Output (Weekly) .....	units	177,290	210,515	177,329	-15.8	- 0.1
Petroleum Output (Daily Average) .....	000 bbls.	7,026	6,716	6,574	+ 4.6	+ 6.9

### TRADE



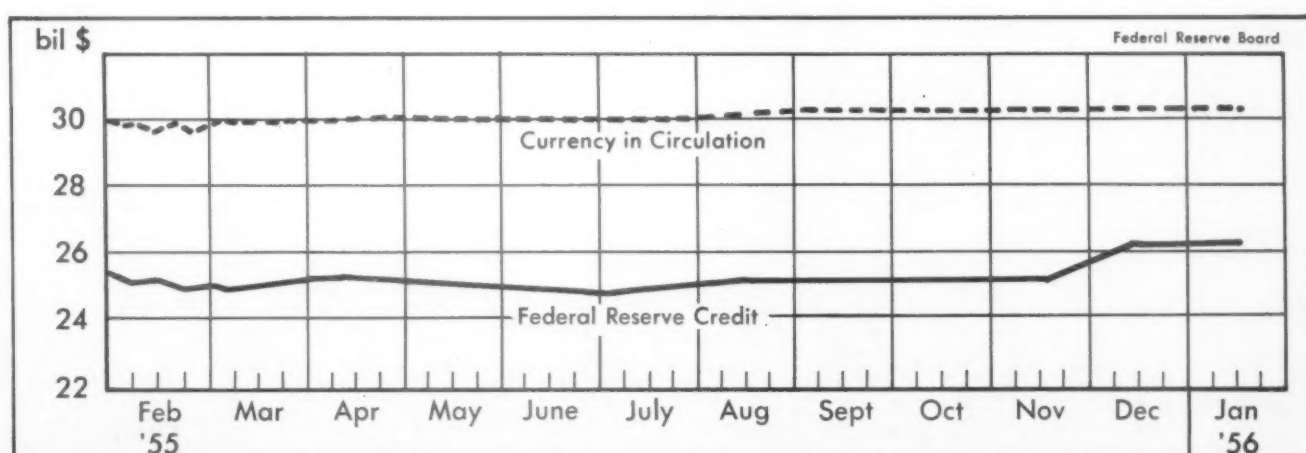
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.) .....	1947-49=100	94	197	106	-52.3	-11.4
Commercial Failures (Dun & Bradstreet) ....	no.	198	209	198	- 5.3	0
Freight Carloadings .....	cars	611,299	728,216	597,352	-16.1	+ 2.3
Miscellaneous Carloadings .....	cars	315,709	377,252	308,042	-16.3	+ 2.5

# PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS) .....	1947-49=100	111.3	111.2	109.5	+ 0.1	+ 1.6
Farm Products .....	1947-49=100	83.4	84.1	90.0	- 0.9	- 7.4
Metals & Metal Products .....	1947-49=100	143.9	142.9	129.8	+ 0.6	+10.8
Structural Products .....	1947-49=100	125.4	125.2	121.8	+ 0.1	+ 2.9
Steel Billets (Pittsburgh) .....	net ton	\$68.50	\$68.50	\$64.00	0	
Steel Scrap, heavy melting, Pitts .....	net ton	53.50	48.50	36.50	+10.3	+46.5
Copper, electrolytic .....	lb.	.43	.43	.30		
Rubber (rib-smoked sheets) .....	lb.	.423/4	.481/2	.323/8	-11.9	+32.0

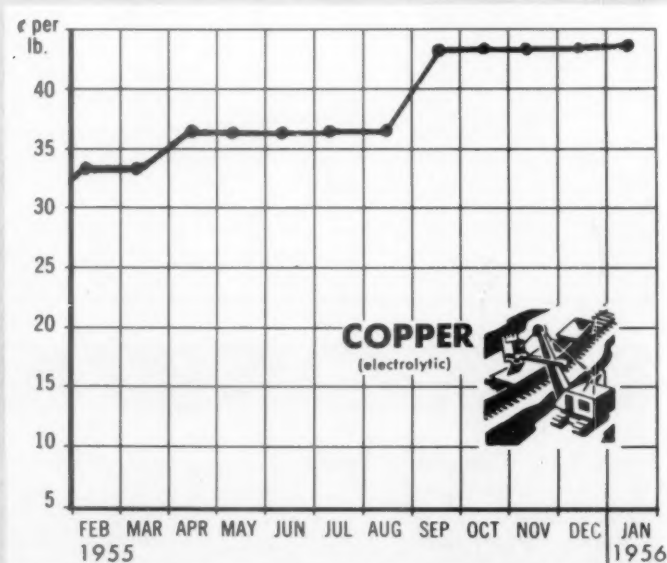
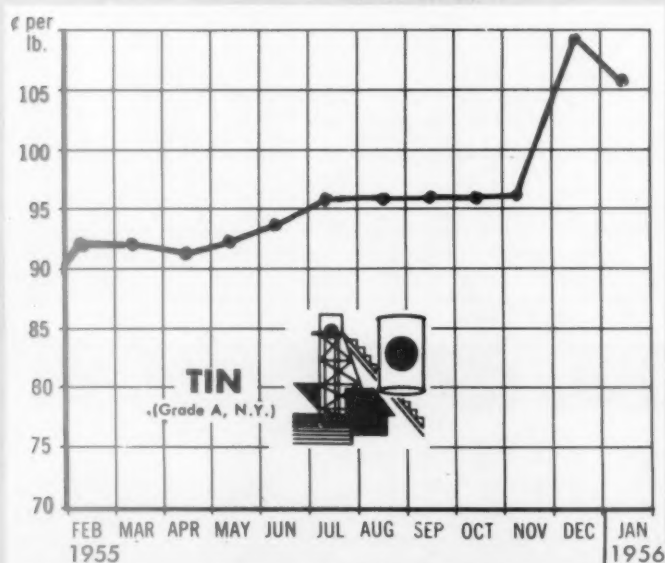
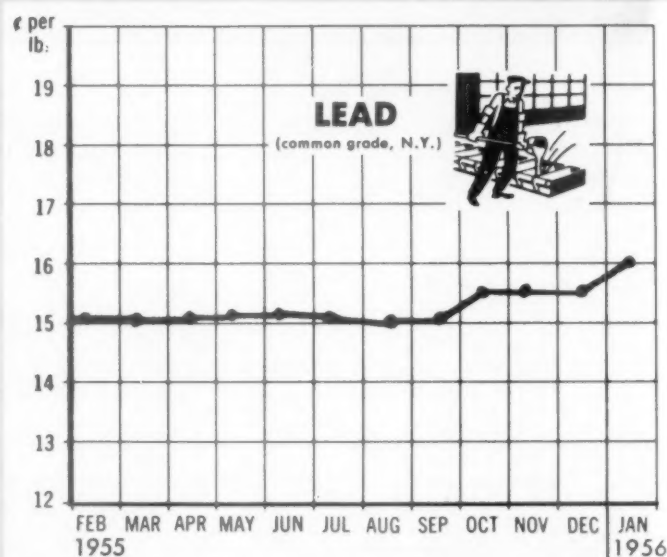
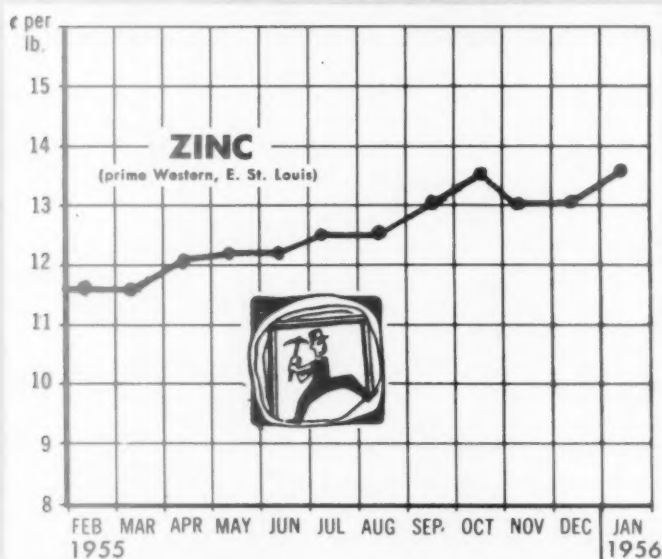
# FINANCE



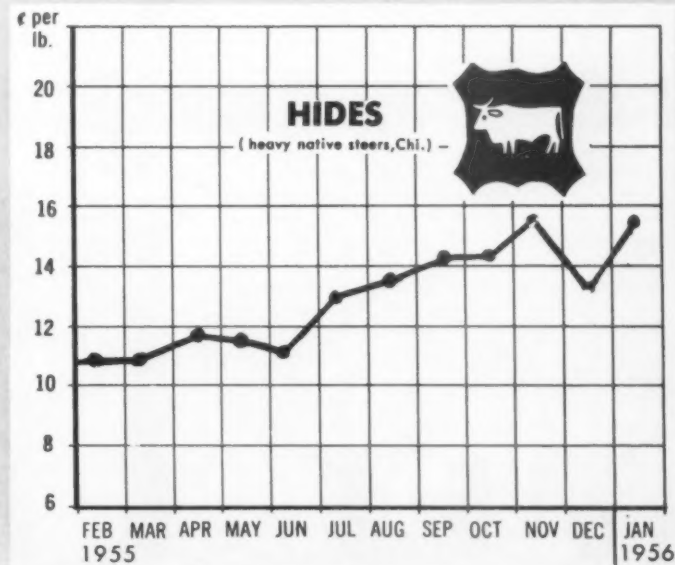
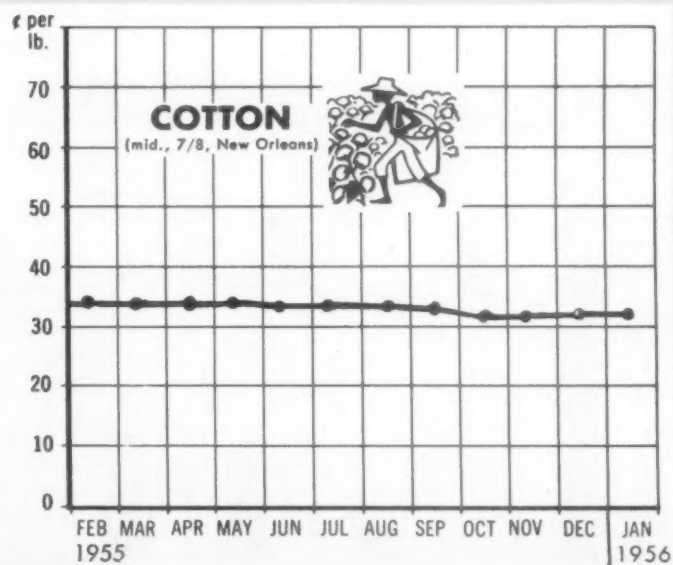
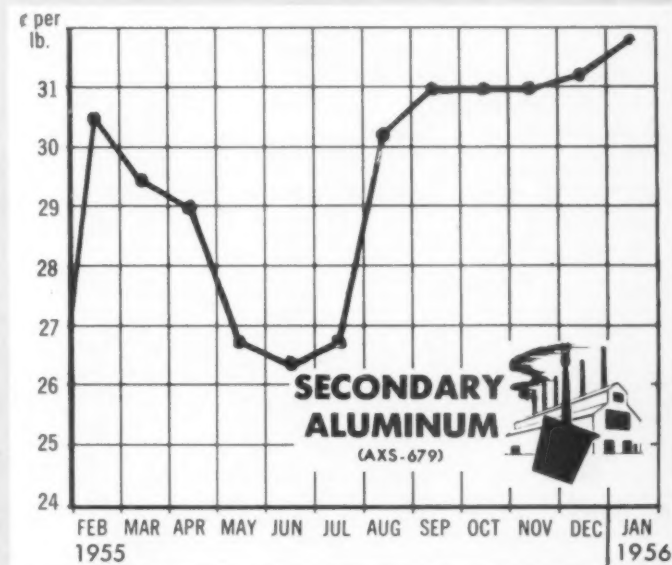
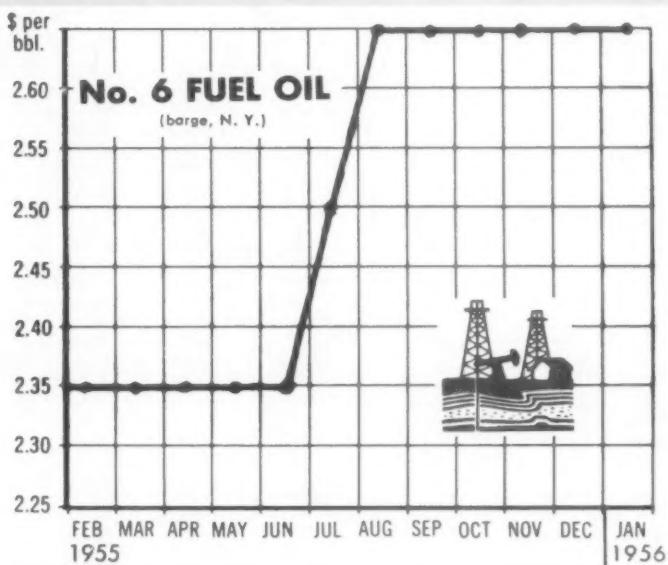
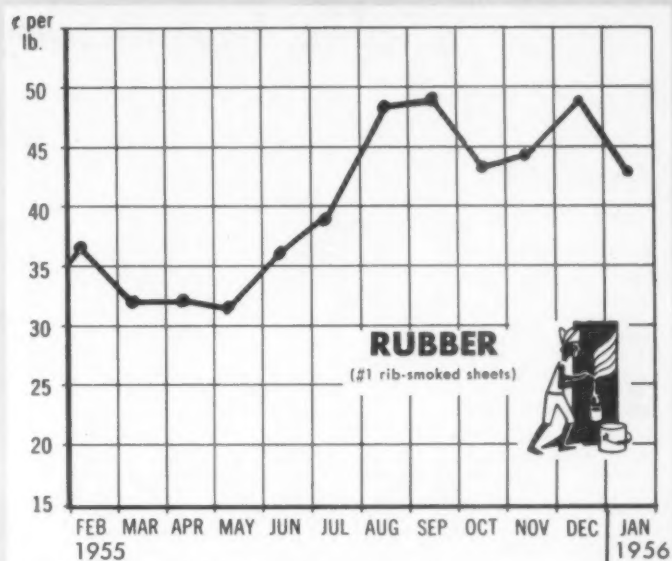
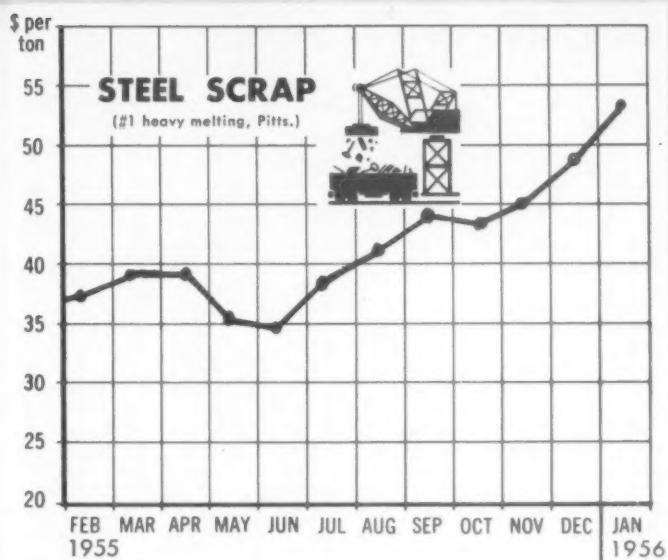
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Stock Prices (Standard & Poor's) .....	1926=100	355.4	363.9	278.2	- 2.4	+27.7
Bank Clearings (New York) .....	mil \$	10,780	11,084	12,424	- 2.7	-13.2
Federal Reserve Credit .....	mil \$	26,375	26,274	26,207	+ 0.4	+ 0.7
Currency in Circulation .....	mil \$	30,914	31,070	30,434	- 0.5	+ 1.6

## Key Commodities Continue Firm

The boom in metals continues. As anticipated, it spilled over into demand for zinc and lead. These two metals had previously shown greater resistance to price hikes than others. Both are now selling at higher prices than a month ago. It's likely that a lot of metals buying is being done to build inventories. The future price trend will depend to a large degree upon how much recent buying has increased stocks. So far, however, there's no reason to expect prices to ease off in the next few months. One barometer of the current market is scrap steel which zoomed to new highs as a result of heavy buying by steel mills.







# Sales, Inventories and New Orders

## Value of Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

All manufacturing industries.....	23,964
Durable-goods industries.....	11,314
Primary metal.....	1,703
Fabricated metal.....	1,126
Machinery.....	3,084
Transportation equipment.....	2,865
Lumber and furniture.....	997
Stone, clay and glass.....	577
Other durable goods.....	962
Nondurable-goods industries.....	12,650
Food and beverage.....	4,031
Tobacco.....	316
Textile.....	1,100
Paper.....	733
Chemical.....	1,761
Petroleum and coal.....	2,240
Rubber.....	404
Other nondurable goods.....	2,066

## Book Value of Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

All manufacturing industries.....	43,270
Durable-goods industries.....	23,959
Primary metal.....	3,127
Fabricated metal.....	2,493
Machinery.....	7,978
Transportation equipment.....	5,772
Lumber and furniture.....	1,617
Stone, clay and glass.....	860
Other durable goods.....	2,112
Nondurable-goods industries.....	19,311
Food and beverage.....	4,529
Tobacco.....	1,861
Textile.....	2,339
Paper.....	1,011
Chemical.....	3,006
Petroleum and coal.....	2,731
Rubber.....	811
Other nondurable goods.....	3,023

## Manufacturers' New Orders (Seasonally Adjusted)

All manufacturing industries.....	23,142
Durable goods industries.....	10,491
Nondurable goods industries.....	12,651

1954	1955				
Nov.	Jul.	Aug.	Sept.	Oct. (r)	Nov. (p)
23,964	26,731	27,229	27,224	26,659	27,318
11,314	13,503	13,745	13,692	13,302	13,720
1,703	2,138	2,285	2,394	2,324	2,417
1,126	1,407	1,510	1,436	1,382	1,434
3,084	3,475	3,484	3,474	3,472	3,524
2,865	3,615	3,413	3,438	3,293	3,510
997	1,198	1,280	1,236	1,131	1,168
577	657	682	670	665	662
962	1,013	1,091	1,044	1,035	1,005
12,650	13,228	13,484	13,532	13,357	13,598
4,031	4,223	4,291	4,249	4,104	4,062
316	316	330	319	327	337
1,100	1,133	1,109	1,131	1,112	1,243
733	834	874	870	877	896
1,761	1,844	2,001	2,010	1,939	2,021
2,240	2,299	2,382	2,346	2,339	2,440
404	471	456	456	428	n.a.
2,066	2,108	2,041	2,151	2,231	2,171
43,270	43,938	44,315	44,703	45,265	45,551
23,959	24,563	24,768	25,182	25,555	25,900
3,127	3,197	3,259	3,305	3,426	3,485
2,493	2,604	2,620	2,757	2,726	2,739
7,978	8,010	8,069	8,110	8,240	8,410
5,772	5,905	5,990	6,136	6,227	6,320
1,617	1,755	1,742	1,795	1,843	1,837
860	906	914	914	947	959
2,112	2,186	2,174	2,165	2,146	2,150
19,311	19,375	19,547	19,521	19,710	19,651
4,529	4,358	4,374	4,392	4,497	4,503
1,861	1,832	1,829	1,763	1,759	1,782
2,339	2,398	2,434	2,397	2,397	2,398
1,011	1,063	1,078	1,026	1,049	1,035
3,006	3,039	3,112	3,188	3,190	3,160
2,731	2,753	2,755	2,787	2,824	2,801
811	853	863	874	915	n.a.
3,023	3,079	3,102	3,094	3,079	3,057
23,142	27,044	28,718	28,301	27,485	28,203
10,491	13,571	15,145	14,936	14,132	14,631
12,651	13,473	13,573	13,365	13,353	13,571

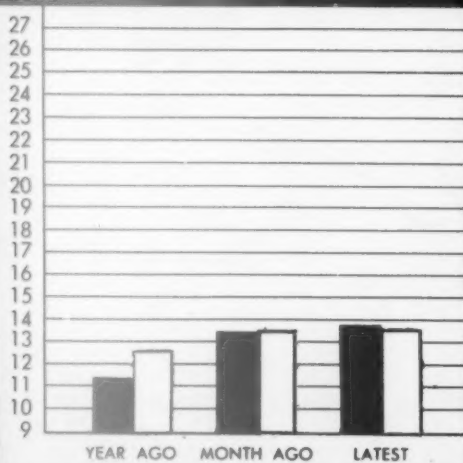
p—preliminary

r—revised

n.a.—not available

BILLIONS  
OF \$

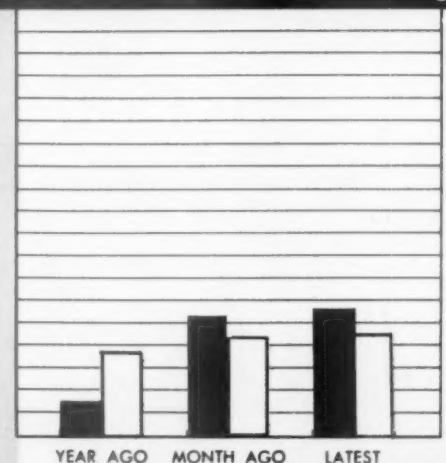
## SALES



## INVENTORIES



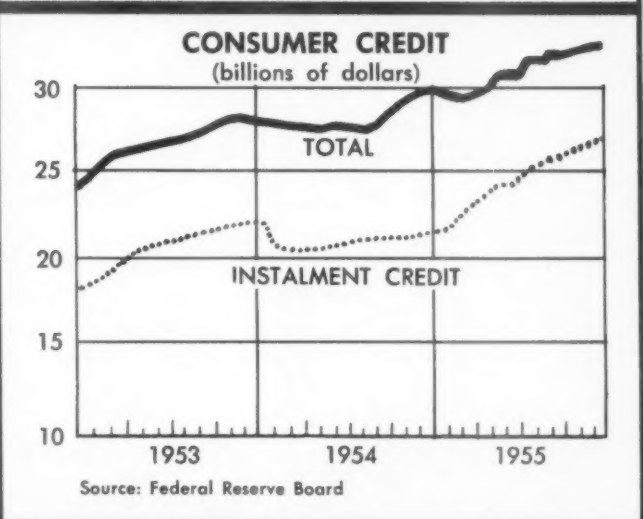
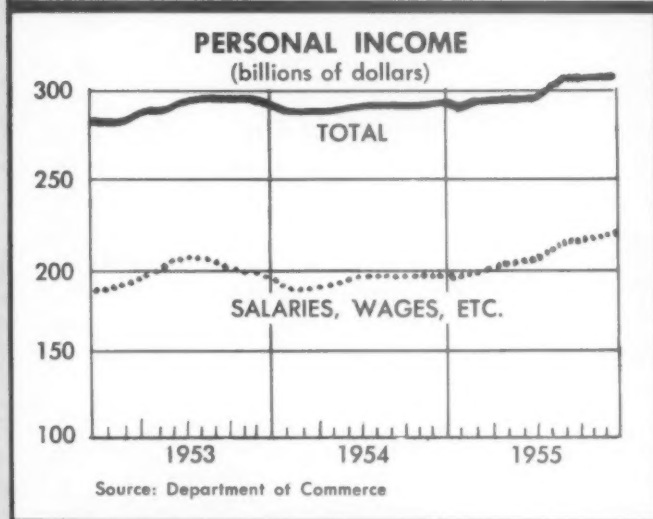
## NEW ORDERS



BILLION  
OF \$

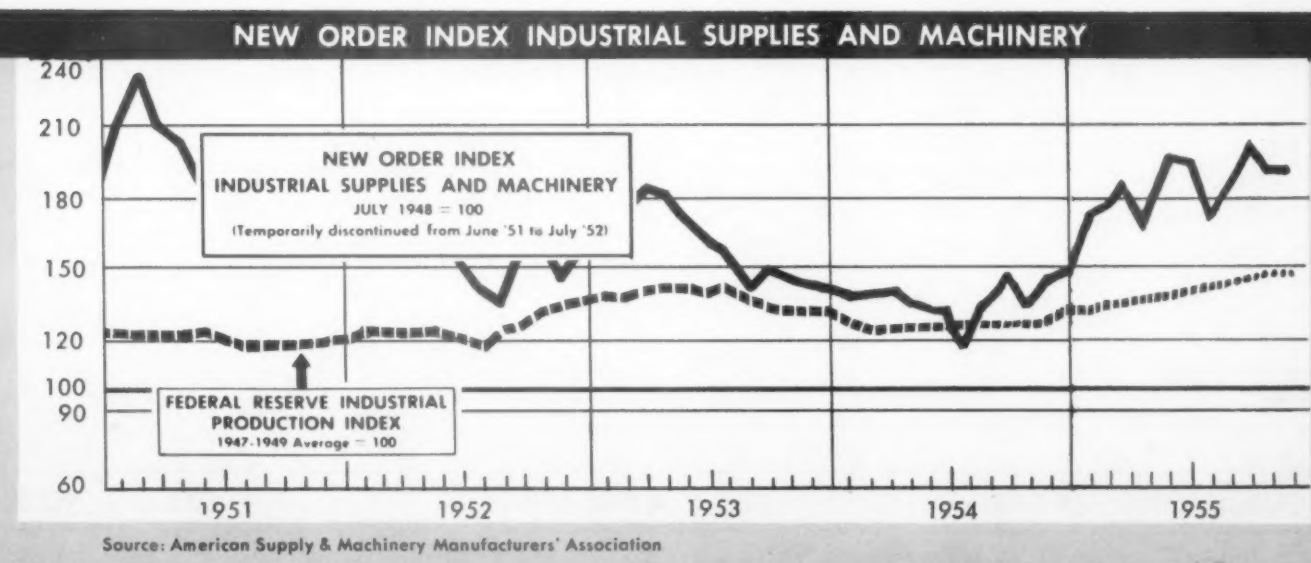
DURABLE GOODS

NON-DURABLE GOODS



BILLION  
OF \$

27  
26  
25  
24  
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### Straws in the Trade Wind

TECHNOLOGY REPLACES BRAWN - A recent government report shows that productivity in the U.S. is at the highest level in history. Muscle power is being displaced by machine power at an accelerated rate. In the past 50 years, productivity has increased an average of 3.3% each year. Recently, it's been spurting upward even more rapidly. This means lower real costs. If wages don't increase, it could also mean lower prices.

"GROWTH" MATERIALS SPURT - Usage of two relatively new materials increased much faster than the economy in general last year. The plastics industry set a new production record of 3.6 billion pounds of material - a 30% increase over 1954. Stainless steel consumption shot up 49% to a new record of 673,000 tons. With both materials, new applications are constantly being discovered which either create new markets or take over markets dominated by older materials. If prices of older materials continue to go up, substitutions will undoubtedly increase.

METALS PINCH HURTS - A Senate committee recently stated that metal shortages have seriously "stunted" the growth of small business. The situation may not be quite as bad as the Senate committee report indicates. Though metals are pretty tight, only 13% of the PAs responding to Purchasing's Opinion Poll reported paying "gray market" prices. Cutbacks in auto output should further alleviate the tight metals situation. This shouldn't be overrated, however. Mills are still pretty busy today even though auto output is off about 16% from its year ago level.

STEEL GOING UP - One PA recently predicted that steel would be up around 60¢ per cwt in the next three months. He bases his estimate on continued heavy demand coupled with higher scrap prices and labor costs. Actually, the much talked about steel price hike seems to be arriving in dribbles. There have been several individual price hikes on certain steel types and shapes. The big blanket increase will presumably come after the mills complete labor negotiations.

TURNING POINT IN PAPER? - Use of paper has been growing much faster than the population. This has meant shortages for a number of years and a seemingly endless (to PAs) round of price increases. Now a change may be on the horizon. Some executives in the industry fear that expansion of capacity may have gone too far by next year. A buyer's market could result. Meanwhile, to keep sales going up, mills are giving more attention to development of markets in South America.

# Purchasing for Overseas Construction



Mr. Crow heads the oldest building construction firm in the United States—owned and directed by the same family ever since it was established in 1940. Mr. Crow is the fourth eldest son in succession to head the company.

Many famous landmarks in New York and other American cities are monuments to the Crow dynasty's quality construction. The firm has done important work for the government during four wars. However, it was not until the present head of the firm took charge that defense work was performed outside the continental United States.

One of the notable bases in our global defense system is Wheelus Field, the monster Air Force base at Tripoli. This \$60 million project, now being completed by the "joint venture" team of Crow-Steers-Shepherd, provided an unusual challenge in procurement, both Stateside and at the jobsite. Mr. Crow was asked to describe how purchasing for such an enormous project is handled.

The system here outlined has been eminently successful. In fact, the performance turned in at the Wheelus Field project was so good that the group has recently been chosen by the Corps of Engineers to handle the enlargement of another base at Asmara, Eritrea. The Project Manager and procurement executives mentioned in this article will hold corresponding positions on the new project.

By William L. Crow, President  
William L. Crow Construction Co.  
New York

**BUYING** for construction of the larger overseas U.S. defense bases is a formidable and sometimes hectic job. But despite some of its peculiarities, it is still basically a "nuts and bolts" operation.

These overseas projects are so huge that a single company is not big enough, or equipped with enough specialized equipment, to do the work alone. Usually, two or three companies combine as a "joint venture" to obtain a contract.

As an example, we combined with the J. Rich Steers Company, New York City, and the Shepherd Construction Company, Atlanta, on the Wheelus Field (Tripoli) project.

The contract called for construction of a complete airfield to

be built on desert sands. More than 4,000 different types of items had to be purchased for the building of runways, hangars, and the numerous other facilities needed for the housing and welfare of thousands of military personnel.

## First Steps

Procurement for such a project actually begins as soon as overall planning does. A key executive is sent to the job site to make a survey of what materials may be bought in the area.

As an American organization we tried, of course, to give as much business as possible to suppliers in our own country. But in terms of economical construction and the urgency of the schedule we had to consider speed of delivery in choosing vendors.

**EXECUTIVE**  
**Project Manager**

Heads the Zone of Interior Office; administers the contract as Principal representing the Contractor.

**Office Engineer**

Assistant to Project Manager; follows up on all actions and orders initiated by Project Manager; acts as trouble shooter on operational difficulties; has no authority to make basic policy or top level decisions; does not take place of Project Manager in latter's absence.

**PROCUREMENT**  
**Project Engineer**

Acts as Principal with the Project Manager, and under his direction coordinates all activities of the Procurement Department; assumes the administration of the Zone of Interior Office in Project Manager's absence.

**PURCHASE READINESS**  
**Design Engineer**

1. Maintain continuous liaison with the Engineering Section of the Rear Echelon and Office of the Architect Engineer.
2. Receive and analyze all plans, drawings and specifications received from District Engineer and Architect Engineer.
3. Anticipate requirements for construction materials, both as to design and quantity, in absence of firm information from the Architect Engineer.
4. Make and issue quantity take-offs.
5. Translate construction schedules into required delivery dates for all Stateside purchased materials.
6. Screen all material lists and designate which items are to be purchased Stateside and which are to be purchased locally at jobsite.
7. Suggest substitutions when specified materials are not available.
8. Prepare requisitions for purchasing action.
9. Issue drawings and specifications for bidder.
10. Review all bids of a technical nature to assure compliance with drawings and specifications.
11. Interpret plans and specifications for vendors when questions arise.
12. Review and process shop drawings, and distribute same.
13. Maintain complete files of all AE construction drawings and specifications and vendors' shop drawings.
14. Receive, interpret and tabulate all field costs.
15. Prepare construction cost estimates.
16. Estimate controlled material requirements for CMP allotment requests.
17. Prepare and maintain progress charts for top level reports.
18. Prepare progress report data for the Reports and Control Section.
19. Provide all drafting service and engineering and technical advice required in all other departments.
20. Estimate future cargo tonnages for preparation of cargo reports by Reports and Control Section.

**PURCHASING**  
**Export Manager**

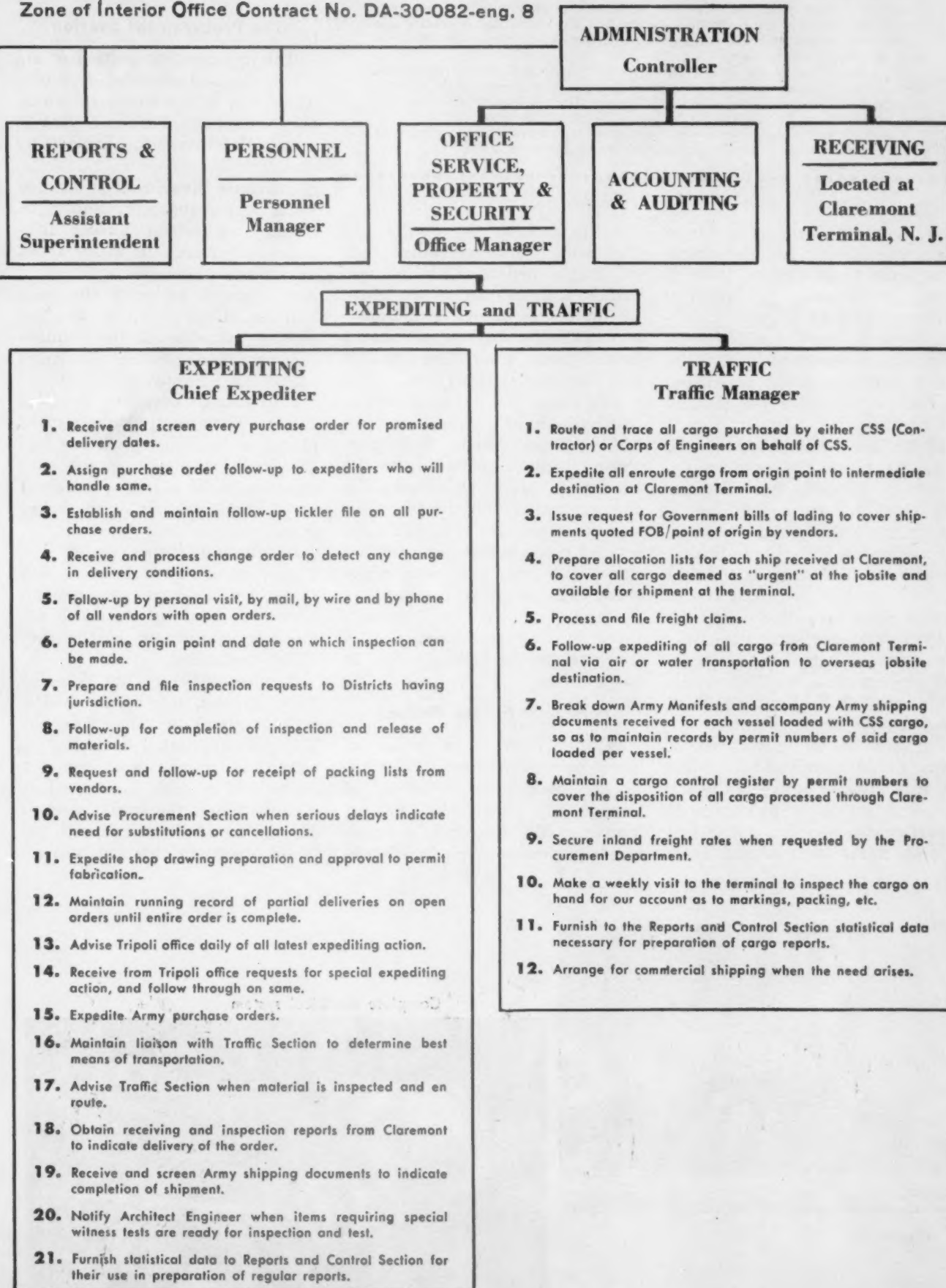
1. Receive and analyze requisitions from the Purchase Readiness Section.
2. Separate requisitions into proper commodity groupings.
3. Analyze all requisitions to determine necessity for obtaining materials through Quartermaster or G.S.A.
4. Initiate requisitions for procurement from QM or G.S.A., or to obtain permission from Contracting Officer to procure from other sources when not available from government stocks or through government procurement contracts.
5. Prepare lists of bidders to whom invitations are to be extended.
6. Prepare invitations to bid, and augment same with all necessary bidding data received from Purchase Readiness Section.
7. Receive, open and tabulate all bids received.
8. Analyze all bids, reconcile errors, omissions and interpretations through negotiation with vendors preparatory to making award.
9. Make awards based on bids received.
10. Check references and qualifications of low bidders before decision to make award.
11. Prepare purchase orders and obtain approval on same from the Rear Echelon.
12. Issue purchase orders and distribute copies to proper departments.
13. Request, obtain and analyze quotations for revisions to purchase orders based on changes made since award; prepare, issue and distribute change orders.
14. Maintain requisition and purchase order registers, and furnish copies of same to jobsite at regular intervals.
15. Maintain complete files of all requisitions, purchase orders, change orders, vendors' quotations, and abstract sheets.
16. Advise jobsite continually of latest progress made in procurement on all materials requisitioned, both on construction materials, construction equipment, and spare parts.
17. Furnish to the Accounting Section all information necessary for backup of reimbursement vouchers to fulfill Army Audit Agency requirements.
18. Keep the CMP register and prepare such reports on critical materials as required by regulations.
19. Forecast delivery dates on critical materials for CMP control purposes.
20. Furnish to the Reports and Control Section all procurement data as developed for the purpose of statistical reporting.



# FUNCTIONAL CHART

CROW-STEERS-SHEPHERD

Zone of Interior Office Contract No. DA-30-082-eng. 8



## What It Takes to be a P. A. Overseas

The glamor of far-away places should not blind imaginative P.A.'s to the realities of overseas buying jobs. Purchasing for our far flung bases demands special know-how concerning buying and selling procedures of foreign countries. It calls for a special psychological quality—the ability to stay away from families and the comforts of home life for at least a year and live congenially in close association with the same men day after lonely day.

Often the projects are in 150 degree desert heat, or 70-below temperatures of the Arctic wastes, or in humid jungles. This means little, if any, outside recreation, the same faces and surroundings month after month, and no accommodations for one's family, even for a brief visit.

It is trade practice that everyone who goes on an overseas construction job signs a contract to work for a minimum of one year.

The deciding factors in large-scale purchasing for such projects, aside from meeting government specifications, are speed of delivery and cost.

Over the four years taken by this job, approximately 50% of every purchase dollar was spent in the United States—a total of \$17 million.

While the preliminary survey is taking place, the organization is set up. Literally two complete organizations are established—one on the job site and one stateside. The stateside Crow-Steers-Shepherd office was established in New York City. Both offices have a chief executive called the Project Manager, and the usual departments—personnel, accounting, procurement, etc. This article deals only with the New York procurement organization.

As soon as the initial list of items to be purchased is made up, it is divided between the job site and stateside procurement departments.

Most items are bought from

time to time as the progress of the work requires, rather than on single orders. Lists of materials and quantities are made up for one structure at a time—a barracks, a hospital, a clinic, a power plant, warehouses, sewers and sanitary systems, etc.

The plans are fed piecemeal—one building at a time—into both buying organizations. Each purchases its share according to the list set up earlier. One reason for this method is that the plans for any structure are often changed several times before the work on them is begun, and even while work is in progress. Roofing, for example, is obtained through three or four purchases over a two-year period instead of all at once.

### Personnel for the Project

In the New York office of Crow-Steers-Shepherd, all activity is under the direction of George A. Reznicek, Project Manager. Mr. Reznicek, a registered professional engineer and

graduate of R.P.I., has had wide experience in engineering, construction, procurement, and administration. He is in charge of the entire New York office.

### The Procurement Section

The procurement section of the office consists of three divisions. They are, in the order in which they function: Purchase Readiness, Procurement, Expediting and Traffic.

**Purchase Readiness** is headed by a senior engineer, Robert S. Findlay, who has almost fifty years experience in many types of construction. His staff of a dozen people (at peak strength) handles all steps up to and including issuance of the requisition, as indicated on the functional chart herewith.

**Purchasing Division** head is P. S. Thompson, Procurement Manager. Mr. Thompson has had 25 years experience in the construction field in sales, purchasing, administration, and other areas.

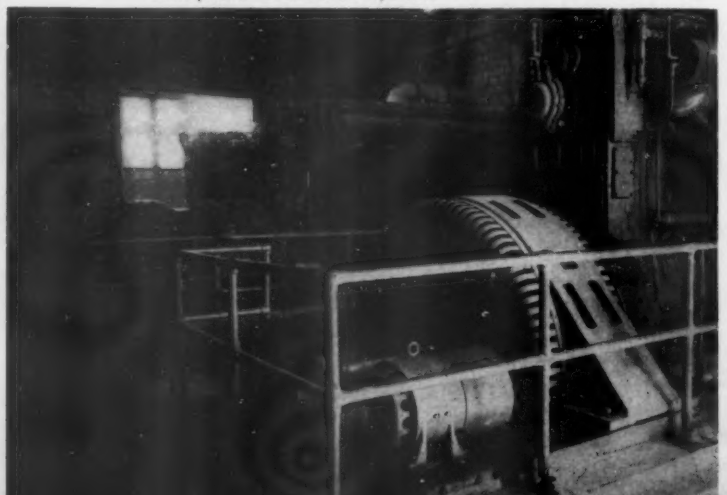
Purchasing agents under Mr. Thompson are specialists in such categories as heavy equipment, plumbing, heating, etc. Each requisition is directed to the specialist concerned.

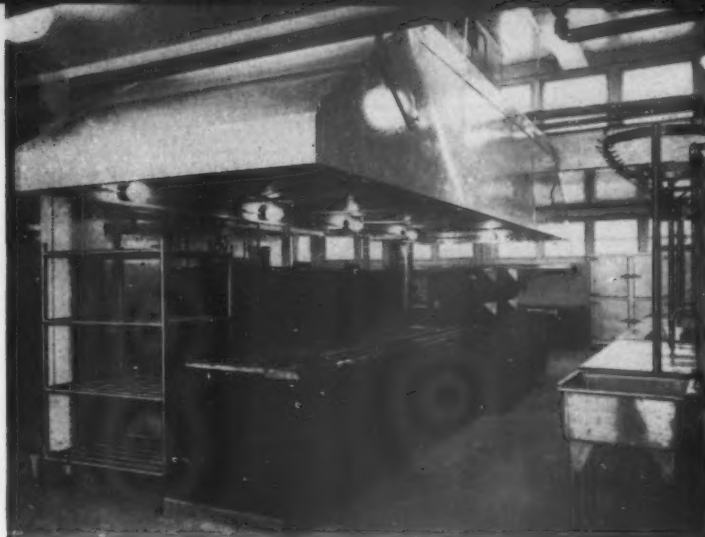
At the height of the Wheelus Field project, purchasing had a staff of about two dozen people. The group operated in "cells," in which a purchasing agent, a buyer and a clerk functioned as a unit. When the work slackened off, and the staff was reduced, the "cell" operation changed into an



Warehouse

Complete electrical system





Cafeteria installation



Dental Clinic

over-all individual assignment procedure.

Sometimes an expeditor was assigned to work with a cell to try to forestall trouble from "squeakers"—contracts that seemed to indicate that they would not be met on delivery date. To avoid having vendors fall down on promised delivery was the biggest problem.

When Purchase Readiness gives the final OK for a requisition, purchasing analyzes it to determine the best bidder coverage by commodities. For example, a requisition for a complete heating-ventilating installation is broken down into fans with motors, ducts, boilers, piping, controls, oil burners, tanks, refractory materials, insulation, grills, etc.

A copy of the requisition is posted on the office bulletin board, so that any interested vendor may submit a bid. Occasionally, trade names are specified on a requisition. This is not binding, however, since government regulations require competitive bids wherever possible. Thus, purchasing invites bids not only from the company indicated, but from all qualified suppliers. "Escalator clause" bids are not accepted if the escalation exceeds 10%.

Fourteen days are generally allowed for the bids to come in. Then, at a specified time and place, the bids are opened in the presence of a representative of the Corps of Engineers. Bids are accepted on the basis of the low-

est responsible figure and the best delivery date that will meet government specifications and job requirements.

Some of the largest purchases involved in the Wheelus Field project were: \$1 million for 14" steel pipe; \$800,000 for 750 KW metal clad switch gear generator sets; \$650,000 for five concrete tanks; \$500,000 for millwork.

**Expediting and Traffic** comes under Francis R. Novotny, Traffic Manager. At peak load, his staff comprises about twenty persons. Responsibilities of the section are shown on the functional chart.

This division begins to function as soon as it receives a copy of

the purchase order made out by procurement. An immediate study is made of the important requirements—delivery date, construction schedule, type of transportation to be used, need for OK's on shop drawings, fabrication, etc.

An initial contact is made with the vendor to confirm terms of the order and to determine when first delivery against the order can be expected. A card is made out for each item and placed in a "tickler" file. Thereafter, periodic follow-up of the vendor is made by telephone, letter, or personal visit.

When the item is ready, this division arranges for government

#### Partial List of Construction Items Purchased in United States

Air conditioning  
Asbestos  
Cables  
Caulking compound  
Flooring  
Generators  
Iron

Lumber  
Millwork  
Pipe  
Plumbing Fixtures  
Poles  
Powerhouse equipment  
Pumps

Radiators  
Roofing  
Sheet metal  
Steel  
Switchgear  
Transite  
Transformers

#### Purchased Overseas

Aluminum Paint  
Asphalt  
Barbed wire  
Boots and goggles  
Brake Fluid  
Celotex  
Cement  
Cloth

Drugs  
Electrical goods  
Electric lamps  
Fuel  
Glass  
Lime  
Linseed oil  
Nails

Office Supplies  
Paint  
Steel buckets  
Steel wool  
Telephone relays  
Tile  
Turpentine  
Water paints

#### Sources of Overseas Purchases

Bahrein  
Bengazi

England  
Italy  
Morocco

Tripoli  
Tunisia



[illegible]

inspection. With the inspection request goes a copy of the purchase order, the shop drawings and the government specifications. If the item passes inspection, arrangement is made for a government bill of lading and the government takes over control.

The traffic department, however, keeps following up on the item to make sure there is no delay in delivery to the port of embarkation. After arrival of the shipment at the overseas port, the jobsite traffic department

takes over and reports to New York any deficiencies or damage suffered en route. Before the shipment arrives, New York, in turn, has been keeping the job-site purchasing division informed on all expediting activities and vendor promises on delivery.

Purchasing for the Wheelus Field project provided an unusual challenge to our procurement personnel. It was met successfully. We hope that some of the methods and procedures described here will broaden the

horizons of purchasing men in other fields who might be faced with similar problems.

It might be noted that the performance turned in by Crow-Steers-Shepherd in building Wheelus Field was so good that the group has been chosen by the Corps of Engineers to handle the enlargement of another base at Asmara, Eritrea. The Project Manager and procurement executives mentioned in this article will hold the same positions on the new project.

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**SUMMARY:** Many people work at standards of efficiency well below their reasonable capacity, and most people tend to continue at these levels unless there is a deliberate effort to raise the standard. Slack work habits can be improved if the causes are understood.

Let-downs caused by slack work periods, overtime fatigue, or temporary disability, tend to set lower standards of efficiency. It's hard to upgrade performance after a slump.

Stresses caused by unreasonable demands, or by tactless criticism, set up a rigidity that acts as a barrier to improvement.

It takes time to overcome normal resistance to change. Better methods and working conditions may be the mechanics for achieving higher efficiency and greater output, but people must break through their own ceilings before such improvements take effect.

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## How Much Work Can A Person Do?

*Watch the efficiency level, because habit  
"stereotypes" work methods at a given rate*

**By Dr. Donald A. Laird**

*Industrial Psychologist, Lebanon, Indiana*

THE county agricultural agent was trying to be helpful. The old farmer listened patiently, then replied, "Sure, I know there's a better way of doing this job, but this is the way I've always done it."

There, in a nutshell, is one big reason why we aren't more efficient. We cling to habitual work ways and are reluctant to take the slack out of our habits of doing. The result is low ceilings on individual accomplishment as well as on business efficiency. Most of us could do much more than we do.

This, of course, is a constant problem and challenge in the administration of a department. Don't overlook the fact, however, that the department head or administrator himself is no exception to this general rule.

We tend to do jobs pretty much as we did them the first few times

they were tackled. This produces frozen work habits. Psychologists have a two-dollar word for describing frozen work ways. They refer to them as "stereotyped"—set in the same old mold. The honest answer to the familiar query, "How am I doing?" is likely to be, "In the same old stereotyped way."

### **Why Standards Are Low**

There are several reasons why the efficiency standard of stereotyped work habits is usually at a low level.

One reason is a poor transition from play years to work years. A person's initial work period is

usually part-time, doing odd jobs or temporary jobs after school hours or during vacations. There is seldom any serious vocational purpose—no special goal or quota. The work is undertaken just to "have something to do" or to get some extra spending money. There is no real thought of efficiency; it is merely puttering at work. Initial work experiences are thus likely to start people in habits of low gear work.

These slack work methods quickly become stereotyped, and are difficult to shake off when serious life work begins. This is a factor causing many shifts in jobs during the first trials at full-

time adult work. Beginning workers often have to try several different jobs before they graduate from play work to pay work.

Periods of unavoidable inefficiency are also a cause of stereotyping work at a low level. Work habits, like water, seem to run down hill at the first opportunity. It works this way: The worker has been out for illness, and returns to the job while still a bit dragged down. The first few days back on the job he naturally takes it easier than usual—and has a good chance of becoming stereotyped at this lower gait. It may be wiser to wait until he is fully recovered before going back to work, so that he doesn't have to baby his work habits.

Periods of overtime work have been found to produce similar lowering effects. Fatigue accumulates as a result of the longer hours; work ways become less efficient than usual. And when the overtime work load is past, many people do not run their efficiency uphill to their former standards.

### **Efficiency Stereotyped**

Efficiency may also become stereotyped at a low standard when a company goes out of its way to provide year-round employment. There are some slack periods when workers are kept on, but they do little more than putter at their work. It is hard to get going again at full steam when things pick up. A similar danger exists in small offices where there may be really busy periods only a few times during the week.

As purchasing men well know, sales people also become stereotyped when selling is easy. During times when demand is strong, the salesman may become just an order taker. When business conditions change and it is necessary to get out and really sell, he finds his sales skill has deteriorated. Then the sales manager has to start sales training and quota drives to pump habits up to more efficient levels.

Whatever the cause of a temporary low level, it is likely to become the new standard unless something is done intentionally to

take up the slack and overcome the stereotyping tendencies.

While the upgrading of work ways requires effort, it should avoid undue stress. The tense worker is rarely efficient. Best results are attained when there is steadiness and relaxation at higher but reasonable levels. Stress is often overlooked as a cause of stereotyping, but is probably more widespread than is generally realized.

### **Avoid Tenseness**

One reaction to stress is to give up, to play safe and not try. That often happens when the boss makes unreasonable demands, or sets a quota too high. Another reaction is the tendency to become more rigid in one's ways and thinking. Mental rigidity caused by stress keeps people thinking and doing in the same old ruts.

This was demonstrated in a clever experiment in which high school graduates were given a series of mental problems to solve. The problems could be solved by the same trick of reasoning, once the people caught on to the key. But after they formed the habit of using that method of solution, Dr. Emory L. Cowen, of the University of Rochester, gave them a set of problems which seemed similar, but which couldn't be solved in the same old way. The people who had mental rigidity didn't analyze the difference and would still try to use the old method; consequently they took a longer time.

When they were under mild stress from just having failed at a too-difficult problem, it took them 2½ times as long to solve one of the old standard problems. When the stress was produced and increased by brusque treatment and belittling them, it took them more than 4 times as long to solve a standard problem. It made them much more rigid in clinging to the old way.

This points up how errors and job failures, or "bawlings out" by the boss, may actually intensify the mental rigidity that must be overcome, and which stereotypes workers. Stress, and especially

the way the person is handled, may make the condition worse.

Resistance to changes is closely related to stereotyping, both as cause and as effect. The majority of people, like the old farmer are not inclined to try out innovations. They feel safer with familiar methods, and think new ones might be risky. Initiative is one of the rarer human traits. This applies not only to work methods, but to foods, ideas, clothes, amusements, and many other facets of daily activity.

Physicians say, for instance, that it doesn't matter whether we eat pie as the first course or as the last course of a meal. But how would you take to the idea of starting your meals with the desert and eating the course backwards? Our eating habits, like most of our ways, have become stereotyped, and most of us are a bit rigid toward making any changes.

### **Resistance to Change**

To demonstrate this to yourself, try wearing your wrist watch on the other arm for a day. This is not recommended as a regular practice, but only to prove a point. Routine can be a great saver of time and effort. From long habit, you know exactly where to glance when you want to know what time it is; you don't have to expend conscious effort in finding your watch—except when it isn't in the habitual place. But except in the most routine office operations, a higher degree of alertness and attention is essential to good job performance. Rigidity is a tremendous handicap to efficiency.

### **The Time Factor**

Rigidity and stereotyping explain why improvements in methods or working conditions often produce no immediate improvement. When air conditioning or more efficient machines are installed, often the boss is discouraged because he can discover no benefits in faster or better performance. Work comes out at the same old rate. Sometimes laziness or resistance to change are blamed, when the real culprit is stereotyping — perhaps compli-

(Please turn to page 328)



# A Workable

## Small Order Procedure

By **W. V. Duke**, Manager of Purchases  
Atlantic Div, American Can Co.

OF ALL the problems that clutter up the normal efficiency of the purchasing function, none is more persistent than the small or emergency order.

At American Can Company, we have made a constant effort to improve our handling of this costly problem. While we have not solved it to our entire satisfaction, we have made it easier to live with.

In 1953, we placed 187,000 purchase orders. Of this number, 60,000 (or 30%) were for less than \$50 value; 40,000 were for less than \$25. We estimate our cost of preparing and handling an order at \$4 each. Thus the small order problem takes on the proportions of nearly a quarter million dollars annually.

What we have done to alleviate some of this financial and operational headache is to approach the whole problem on a special basis.

Primarily, we have "farmed out" our small orders to the factories or, in some cases, to the lowest purchasing office level. This does not in itself reduce the number of such orders, but it does relieve the burden in the central office where costs are generally higher. It also saves the time of the more adept buyers, avoids delays, and proves the old adage that "Many hands make light work."

We also issue monthly, quarterly, or semi-annual blanket orders, on selected suppliers, to greatly reduce the number of individual orders. We release individual items against these orders by telephone or any other com-

munication method that is less costly than a formal purchase order. With blanket orders, we enjoy quantity prices from the supplier and still retain the advantage of frequent shipments.

As an adjunct to this policy, we use a special form for orders of less than \$25 value. These are issued by the factory using the material, and no copies are forwarded to central purchasing. All processing and payment of these orders is handled through the office at the factory receiving shipment. In addition to cutting processing costs, it provides quicker payment to the supplier.

Central purchasing's control on this form of "petty cash" purchasing is through periodic checking. Unlike our normal purchasing forms, the special small order form is pre-numbered, each factory being assigned a block of numbers. Since all numbered forms must be accounted for, even cancelled or voided forms, a numerical check provides the first control on the form usage.

During this checking procedure, and periodically at other times, central purchasing reviews the commodities appearing in the small order routine to see wheth-

er they can be combined. We are able, at times, to improve our position by removing repetitive orders from the small order operation and replace them with one large or blanket order for future shipments as needed.

As a final step, wherever possible we arrange with suppliers to stock hard-to-get items which must normally be ordered in small lots. This copes with the problem of tracing down difficult items. It also insures cooperation from suppliers since they are assured of repeat business on their larger than normal stock of these items.

We estimate pretty reliably that this combination of procedures has cut administrative costs in this one facet of the purchasing operation by more than 50%.

Any solution to the small order problem must be individually tailored for each company and operation. We feel that our handling of it is definitely a step in the right direction. There is much about it that we would like to improve. Our controls, for example, are not too accurate. Yet with our purchasing people it has worked out fine, and that, to us, is the most important thing.

Postage Costs

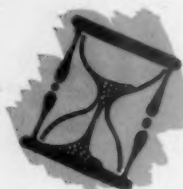


Labor Costs

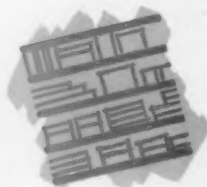


# Cutting Correspondence Costs

Wasted Time



Supply Costs



*How large and small offices have found and stopped the little leaks that add up to big wastes in office practice*

**By Ernest W. Fair**

Wasted Stationery



**T**AKE a second look at that batch of mail that's being turned over to Uncle Sam's Post Office Department at the end of the day's work. It represents a sizable outlay of money, even if you figure each piece at just the cost of a letterhead, an envelope, a stamp, and a few minutes of typing time. But don't make the mistake of assuming that a business letter is a five-and-dime item. Check these bare mechanical costs against the quotations of an efficient professional letter shop, where correspondence is turned out in quantity, and you will quickly double your guess. Listen to the experts who have made a

study of office costs. You may be surprised to learn that it has been reliably estimated—and demonstrated—that the cost of preparing and issuing business letters sometimes ranges from fifty cents to more than a dollar apiece in some offices today. Wherever the cost is that high, it will bear close analysis and corrective action toward cost reduction.

Few office executives have a detailed study of such costs in their own operations. Such a study should be made periodically. Into it must be figured not only the basic costs of stationery and postage, but labor, a proportionate share of general office

overhead, supplies and materials, and the cost of machines used in handling correspondence. When this analysis is made in an individual office, we have a clear outline of how to proceed in reducing these costs, for the ingredients which are out of line will stand out in bold relief.

This article presents practical suggestions for reducing these costs in any office where they are too high. The suggestions have been gathered from successful experience in offices where constant study shows the way for closest control over the cost of handling correspondence of all kinds.

## Wasted Stationery

One of the most prevalent leaks, leading to high cost, is waste of stationery. You want your letters to look well. To this end you have made a considerable investment in the design and the printing or engraving of your letterheads. That's fine. At the same time, it means additional cost each time a sheet gets into the waste basket instead of into the mail. Typing mistakes will happen, even with the most competent office help. More liberal use of erasures, instead of retyping an entire letter, not only avoids waste of stationery but saves stenographers' time as well. The use of better grades of paper will permit such erasures not possible on bargain papers.

Stationery waste can also be reduced through a rule requiring each typist to check names and addresses before beginning a letter or filling out an envelope. One survey disclosed that a high envelope cost in a large office was caused by too great an emphasis on speed in addressing, so that typists gave hurried glances at the copy and made numerous errors. Result: two envelopes were used instead of one.

Another check should be made on methods of storage and issue of forms and stationery. Issuing these supplies in too large quantities is a contributing factor to waste and high cost. Stored papers are kept in better condition when in the original boxes or wrappers. Too big supplies on hand at the desk are an invitation



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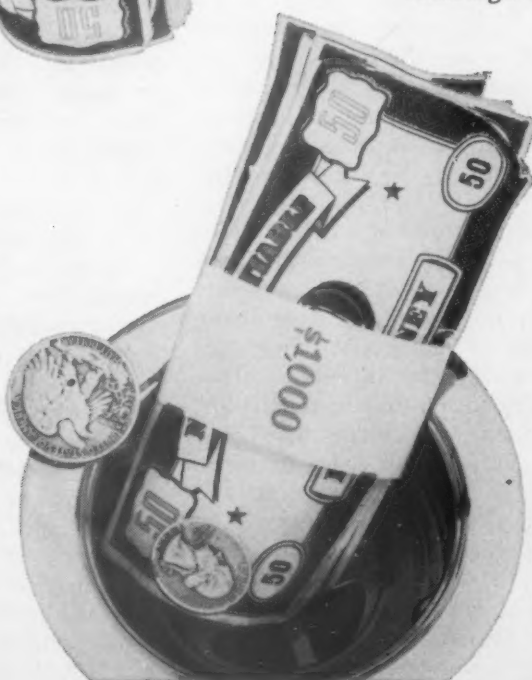
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to wasteful usage. Storage on desk tops results in soiled and rumpled sheets. Working letterheads and forms should always be in the desk drawer space reserved for them, where they have almost no chance of becoming soiled, creased, or torn.

### **Postage Costs**

In offices of even moderate size, postage meter machines almost always cut down waste in this important cost. With the possibility of increased postage rates, this factor will become even more important. Unit cost of stamps is small, and pilferage may seem to be an insignificant item, but when it is added up over the course of a year it can reach sizable totals. Preventing this with a meter machine, or by centering control in one individual who can be trusted to guard the firm's postage as though it were money (which it really is) are steps which can be taken.

Many companies also waste postage through use of too heavy paper and envelopes or use of too many enclosures. Fine quality papers are available in the 13 pound weight. Where correspondence tends to be heavy, that small difference can frequently save the extra stamp required on overweight letters.

Proper use of postal service helps too. Special delivery stamps on letters sent to Post Office box addresses are sheer waste; also on a lot of mail which would be delivered in the first mail the next morning anyway. The same principle applies to proper use of air mail. In many instances a regular mail letter will arrive the same day as an air mail letter.

### **Labor Costs**

Most of the cost of handling office correspondence is in the wages and salaries paid to personnel, not only in typing correspondence, but in handling the mail both on arrival and despatch.

With today's high wage levels, it pays to give attention to the highest possible return in the way of productive service. Too often office managers judge the ability of a stenographer or typist, for example, by speed tests rather

than the ability to turn out a given volume of correspondence in the day's work. Speed, when coupled with waste of stationery and supplies, as well as the need for frequent rest periods, can actually be costly. The employee who turns out her work at a steady pace without mistakes is the one who, in most cases is keeping correspondence cost down in her office.

Many companies have also found that a series of standard form answers to certain types of correspondence, made available to each stenographer, can cut down labor costs. Where each letter is handled individually, either through dictation or on the resources of the individual stenographer, the time required to handle that particular piece of correspondence increases.

### **Form Letters Save**

One office found that 85% of its correspondence could be answered with six simple form letters, with only a slight change now and then required. Girls soon knew these by heart and could breeze through them rapidly, without hesitation. A single week's study of the mail in any office will reveal how much similarity exists in the greater part of its correspondence.

Another firm reduces this cost through use of printed postcards, requiring only check marks to indicate the appropriate message. These are used in answering queries where the form reply does not give offense. A girl can handle ten or more of these in the time that would be required to answer a single query by individual letter.

Even this type of shortcut lends itself to simplification. Still another firm, in making a cost survey, found that forms were being used in the office entailing stenographic work far in excess of the actual need. On one in particular, 20 spaces were being filled out where 75% of the cases required information in only three to five categories. The remainder of the typing was sheer waste and only added to overhead cost. A new "short form" was designed to handle this 75% group, while the old form was retained only for

use in the cases where the complete information was essential. Since hundreds of these forms were filled out each month, the savings in stenographic costs amounted to a good round figure, with additional minor savings in supply expense and file space.

It is generally recognized in business that routine matters, including routine correspondence, can be most efficiently handled by well conceived routine methods. While the "form letter" has acquired a somewhat unenviable reputation in some quarters, it has many legitimate uses in business communication, and there is little danger that it will be resented by the one receiving it, provided it does the job for which it is intended. Of course, nothing takes the place of the individual, personal letter for the case that is even a little outside of sheer routine. Judicious use of form replies saves time that can be applied to more prompt and thoughtful handling of correspondence that requires this personal attention.

### **Wasted Time**

Eliminating wasted, unproductive time in the office is of utmost importance. Often this is due to the methods used, rather than to any shortcomings of the office staff itself.

Dictating machines are tremendous time savers. They conserve the time of stenographer-typists, who may otherwise spend many idle hours waiting while dictating is interrupted by phone calls and other intrusions. The dual job of transcribing is also cut in half.

Initial distribution of incoming mail often sets a roadblock that hampers the smooth flow of correspondence in the office. The morning mail should be distributed just as promptly as possible so that work can start when the day starts. Firms depending on regular carrier delivery sometimes get their first mail as much as an hour or more after the office has opened. The very small cost of a post office box could make such mail available at the very start of the work day.

Assignment of correspondence  
(Please turn to page 332)



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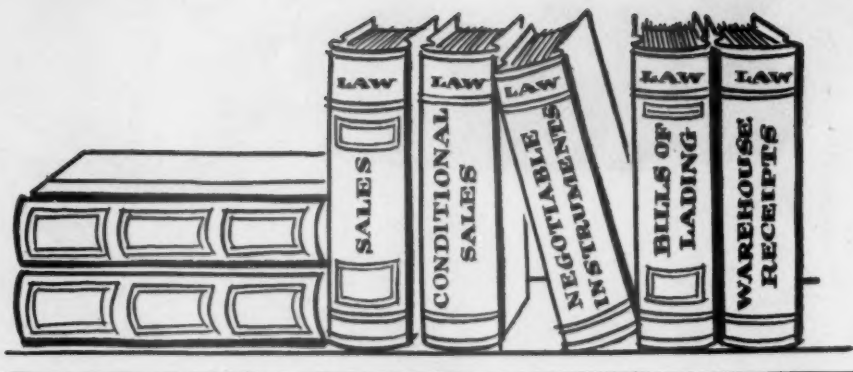
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## UNIFORMITY in Commercial Law

*Fifteen-year project to reconcile and codify the existing body of state and federal statutes governing commercial transactions is nearing completion as legislators consider the proposed code*

**By Prof. Arthur S. Miller**

Lamar School of Law  
Emory University, Ga.

**W**HAT is doubtless the most important development of the twentieth century, in commercial law, is now under serious consideration by a number of state legislatures. This is the so-called Uniform Commercial Code proposed by the National Conference of Commissioners of Uniform State Laws and the American Law Institute. Already one important commercial state—Pennsylvania—has adopted it. The

legislatures in New York, Massachusetts, California, Connecticut, and Texas all have the Code under active study.

If enacted by other states, particularly those which lead in business activity, the Code will have far-reaching results. Its basic purpose is to have all commercial law wrapped up in one all-encompassing statute, integrated in all its parts so as to eliminate present inconsistencies in the

laws. Written in the type of English that non-lawyers can understand, its object is to eliminate legal artificialities and to meet head-on the real problems that come up in day-to-day business activities and dealings.

Speaking generally, commercial law today is governed by a series of "uniform statutes." Some of these have been adopted in all the states; others, however, are in force only in a minority of states. Most of the acts were first promulgated in the early years of this century, at a time when business activity bore little resemblance to today's national and international economy. Included in the group of statutes are:

The Negotiable Instruments Law

The Sales Act  
The Conditional Sales Act  
The Stock Transfer Act  
The Trust Receipts Act  
The Bills of Lading Act  
The Warehouse Receipts Act

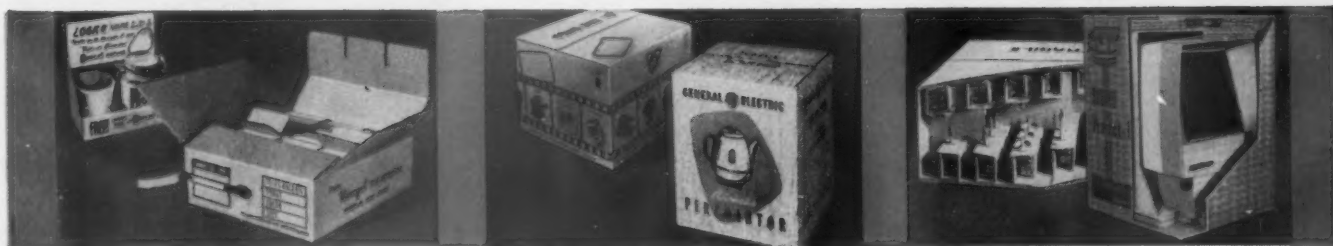
Despite the attempt at uniformity in that legislation, perhaps the outstanding fact of commercial law today is its *non-uniformity*, in a business world that is becoming more and more unified. Since most of the commercial law first was enacted, or was established through court decisions, such influential developments as the Federal Reserve



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System, the rise of the investment market, two world wars, the great depression, and the rise of a truly national economy have taken place. But the law, displaying a "cultural lag," has not kept pace with the economic and political changes. The result is that outmoded law is trying to service current needs and current problems.

It was to rectify this situation that the project which has culminated in the Code was begun in 1940. The National Conference of Commissioners of Uniform State Laws (representing various state governments) undertook at that time a revision of the Uniform Sales Act. (It is of interest to note that this was done after certain industry and commerce trade associations had prepared and introduced into Congress a Federal Sales Act. One of the reasons for the Conference action was to stave off a congressional statute.)

The Commissioners soon found that the Sales Act has some provisions which deal with the same situations as other statutes. For example, both the Sales Act and the Bills of Lading Act have sections (which, by the way, conflict with each other) on negotiation of documents of title. The resulting confusion pointed to the necessity of looking at all aspects of the commercial transaction and attempting to draft a single code of major rules affecting the distribution of goods.

Such an approach entailed a project of some magnitude. Accordingly, the cooperation of the American Law Institute, a non-profit organization dedicated to the improvement of the judicial process, was solicited and obtained. A grant of \$250,000 was obtained from the Falk Foundation. This, plus about \$100,000 furnished by interested business groups and lawyers, has financed the project since 1942.

The Code was drafted by a group of experts, under the general supervision of one of the outstanding authorities on commercial law, Professor Karl N. Llewellyn, then of Columbia University Law School and presently at the University of Chicago Law School. Throughout the drafting

stage, the advice and aid of business and professional groups was sought and received. When the Code was completed in 1952, it represented an attempt to rationalize commercial law, modernize it, and bring it into consonance with what in fact takes place in the business community.

This emphasis on the facts of business enterprise led to the building of the Code around these facts, and not around historical legal categories which often have little relation to what actually goes on. Simplicity was sought throughout. The object was to eliminate as many legal technicalities as possible, and to phrase the Code in language understandable to both the lawyer and the layman.

### Scope of the Code

The Code is extremely broad in scope. It collects in one place all of the rules of law regarding the distribution of goods, at the same time revising the major existing statutes concerning commercial transactions. In addition to the seven Uniform Acts already mentioned, the Code covers areas never before made the subject of uniform state legislation—bank collections, letters of credit, foreign remittances, chattel mortgages, factor's liens, assignments of accounts receivable, and bulk transfers. The Code is broken down into eleven sections, the titles of which will indicate their scope:

- General Provisions
- Sales
- Commercial Paper (i.e., negotiable instruments)
- Bank Deposits and Collections
- Letters of Credit
- Misc. Banking Transactions
- Warehouse Receipts
- Bills of Lading and other Documents of Title
- Investment Securities
- Secured Transactions
- Bulk Transfers

Effective Date and Repealer will also be indicated as a separate provision of the Code in each instance.

Thus the Code would constitute, in one sweeping enactment, all of the legal principles applica-

ble to both the simplest and the most complex transaction.

Most dealings, while perhaps outwardly simple in appearance, involve a great deal of complexity when they are analyzed. For example, take the case of an automobile, from the time it comes off the assembly line until it gets to the ultimate consumer. It involves a whole series of different transactions, each one of which has legal ramifications.

In the first place, the manufacturer and retailer have what is known as an exclusive dealer arrangement; the legal category governing such situations is called "agency." In addition, some sales law is applicable. Then there is the law relating to financial arrangements; along with the first transfer of the car goes a documentary draft with a bill of lading. To pay that draft there is a check—what lawyers call a negotiable instrument. Next, possibly a financing company has financed the draft, and a note (another negotiable instrument) for a large part of the price goes to that company. The car itself goes to the dealer on what is called a trust receipt—a security device.

After the car has been in the dealer's hands and moves into possession of the ultimate buyer, another sales transaction normally takes place and another financing transaction occurs. There may be a conditional sale of a chattel mortgage—another security device. Time payments come in with a series of checks which pass through the channels of bank collection.

Thus, in even such a simple, routine type of transfer of goods, there is a complicated, intermixed body of fact and law. And when the law is observed, it is found to be outmoded and unrealistic. Take, for example, the law concerning sales, governed in most states by what is euphemistically called the Uniform Sales Act. The critical question, according to this Act is: When does title to the goods pass? The risk of loss, seller's and buyer's remedies for breach, and other legal aspects all hinge upon the answer to that question. And the Sales Act indicates that *title passes when the*

New Case "400" Tractor, shown here, is setting new standards of tractor capacity, convenience, comfort, appearance and over-all performance.



## Many parts of YOUNGSTOWN Steel go to make Case's "new from ground up" 400 Tractor

Not often does a farm equipment manufacturer create an entirely new tractor. Such a change is costly—both in time and in tooling costs. But, the J. I. Case Company of Racine, Wisconsin, did it with the Case "400" Tractor.

Another thing that Case did was to make sure that the "400" would be a quality product. That's why parts such as 4th and 8th speed gear seat reinforcement, rear axle shaft, differential shaft, reverse idler gear, front wheel spindle and many others are of Youngstown Steel. These parts utilize 5 different Youngstown Steel prod-

ucts: Hot Rolled Alloy Bars, Hot Rolled Carbon Bars, Hot Rolled Sheets, Cold Rolled Sheets and Standard Black Pipe.

In all Youngstown Steel products, you will find the same dependable uniformity, because Youngstown controls the complete manufacture from start to finish, with emphasis on quality throughout.

Let Youngstown help you with your steel problems. For information and service, get in touch with the local Youngstown distributor—or phone our nearest district sales office.

# Youngstown

### THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

Manufacturers of  
Carbon, Alloy and Yaloy Steel

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS



parties intend that title shall pass. The rub comes, of course, when it is pointed out that the parties to the transaction usually give little or no thought to the title at all.

So, as Professor Llewellyn has remarked, this results in a situation where "the crucial question for a businessman to think about, and for his (legal) counsellor to advise him, is how to advise what will happen when that happens which nobody thought about, but where everything depends on what they intend. This is the reason for what might be termed a 'mild confusion' in the present law of sales."

### Pro and Con

Proponents of the Code point to the advantages to be gained from enactment of the code:

(a) ironing out inconsistencies in the present statutes relating to commercial transactions;

(b) modernization of the law so as to bring it up to date and in tune with business practice;

(c) looking at the business transaction involving distribution of goods in an over-all, rather than piece-meal fashion;

(d) eliminating legal technicalities that are largely the result of historical accident; and

(e) substituting language that is readily intelligible to all.

Opponents have, however, marshalled a number of arguments against adoption of the Code. It is these arguments, plus the natural reluctance of legislatures to make such a sweeping change in existing law, which have thus far held up wider enactment of the Code.

(a) In the first place, it is said that the present legal rules have been "beaten out on the anvil of experience" and should be preserved without "drastic" change. This is answered by the statement that the Code is designed so as to preserve what is good and well established, while at the same time reducing to a minimum the inconsistencies, uncertainty, and confusion.

(b) A second argument maintains that the Code, since it is a complete rewrite of commercial

law, would destroy and make useless learning built up over the past 50 to 100 years, and thus would introduce more confusion with a resulting unfortunate and costly impact upon business. Proponents of the Code meet this argument by pointing out that, while it is a reorganization of commercial law, the Code is built solidly on the law as it is, and that it is not a radical upheaval of the law. In this view, the Code clarifies, rather than adds confusion.

(c) Another argument maintains that it is a mistake to include all commercial law in a single code. It is met with the reply that more unity and coordination of separate parts will result under a single act.

Perhaps the most cogent argument advanced by those favoring enactment of the Code is to point to the actual experience under the Code in Pennsylvania. There, it is reported, there have been some "pains of childbirth" and a few "bugs" have been disclosed; but "the Code has not produced any substantial upheaval in operating procedures or practices" and most of the reaction has been favorable.

### Effect on Purchasing

Assuming widespread adoption of the Code, as now written or with some alteration, the ramifications for those engaged in purchasing will be important, but will probably not be felt overnight. The impact, rather, will be gradual and will make itself felt over the years as the rationalization of existing commercial law takes place.

To the extent that legal technicalities (which are largely the result of tradition and history) have served to hinder, rather than aid, the actual practices of businessmen in the distribution of goods, the Code should be an ameliorating influence. In a complex society, it is probably impossible to get utter simplicity in any of the institutions of that society. To the extent that the law serves the social purpose of regulating our commercial affairs so that there is a free and continuing flow of goods and raw materials

throughout the nation, then of course the law itself cannot be simple. The economic process is far too complicated for that. But the Code simplifies as much as possible, and puts the basic rules into understandable language. Admitting that there may be defects and "bugs" in the Code as now drafted, still its over-all result would appear to be beneficial.

A few years ago, a legal commentator observed that there is "a pathetic contrast between the law of contract as it is taught in most textbooks and modern contract as it functions in society." Since the law of sales is but a branch of the law of contract, an indication of what the Code will do to the present Uniform Sales Act is in order and should reveal the workings of the Code.

The content of the old Sales Act has been completely rewritten. In addition, about 40% of Article II of the Code (dealing with sales) is new material, having no present statutory background. Most noteworthy of the innovations in the sales article are:

(1) making a distinction between a casual seller and a "merchant" or "professional"; and

(2) abandonment of the idea that the rights and duties of parties to a sale turn upon the theoretical passage of title.

So far as the first innovation is concerned, the distinction made will call for different legal results attaching to agreements between merchants than would attach to transactions between merchants and customers (or other non-professionals). For example, risk of loss passes from a casual seller to the buyer on tender of delivery, but would pass only on receipt by the buyer if the seller is a merchant. Under the Code, no longer will location of "title" serve as the basis for distributing legal rights and duties; instead, the law of sales will by and large conform to the law of the formation and performance of an ordinary commercial contract. As noted above, doing away with the abstract concept of title will go far in lending clarity to sales law.

What is true of sales law is also

(Please turn to page 302)



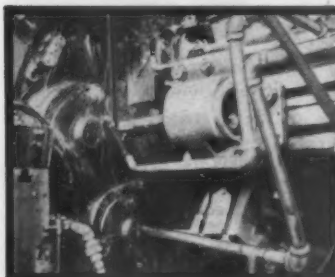
**Owned by Jessen Manufacturing Company, today's most advanced automatic screw machine uses Cities Service Cutting and Hydraulic Oil**

Weighing 39 tons and powered by a 60 H.P. motor, this 6-inch, 6-spindle Acme Gridley Automatic Screw Machine is one of the only six now in existence . . . and the only one owned by a job shop. Featuring a combination pneumatic-hydraulic operation, it can turn out a single load of stock weighing 3 tons!

The owner is Jessen Manufacturing Company of Elkhart, Indiana—since 1923 famous for keeping on top of new developments. It's not strange, therefore, that for this advanced new machine they chose a top quality coolant—a Cities Service cutting fluid.

Says President J. H. Jessen: "We're happy to say that the Cities Service cutting oil we use today is one of the finest all-around cutting oils we have ever used. In years past, we felt that if a cutting oil was good, it had to be black, heavy, and odorous. Cities Service has changed our minds with a cutting oil that has outstanding cooling abilities, good chip drain-off, is anti-weld . . . and yet possesses light, clear color and has no noticeable odor. In addition, Cities Service Pacemaker Oil used in hydraulic systems, and Amplex Lubricating Oil are doing an outstanding job throughout our shop. We proudly recommend *all* these Cities Service Oils."

For more information on the complete line of Cities Service cutting fluids, call in a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



**Light, Clear Coolant** in Acme-Gridley Automatic is Cities Service cutting oil. "Outstanding cooling, anti-weld, and chip drain-off ability," says Jessen. Firm also praises Pacemaker Oils, used in their hydraulic operations.



**Jessen Mfg. Company, Inc. Mr. Jacob Jessen, Pres.,** in business since 1923, has earned reputation of keeping on top of new developments. In 1935, he was one of the first to install 6-spindle, anti-friction bearing screw machine.

# CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

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FEBRUARY, 1956

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# All these smaller, lighter G-E motors

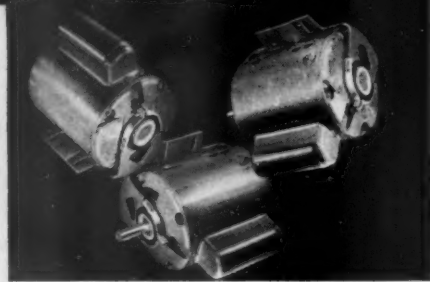
ONLY G.E. OFFERS ALL THESE SUPERIOR FEATURES



**SMALLER, LIGHTER DESIGN**—as much as 40% smaller and 50% lighter—speeds assembly and cuts product shipping weight.



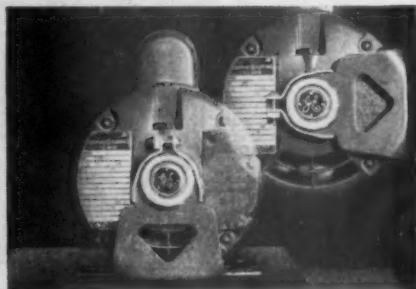
**MYLAR\* INSULATION** (right): 35 times the moisture resistance, 8 times the dielectric strength of paper insulation (left).



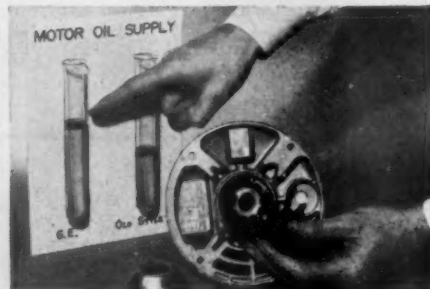
**ALL-ANGLE OPERATION**—lubrication is sure and protective when mounted in any position; no need for costly specials.



**EASY CONNECTION**—terminals are close to cover plate; speed-nut welded inside shell for fast connection from outside.



**MOUNTING VERSATILITY**—with resilient or solid cradle bases, you can rotate any G-E motor to meet your design needs.



**DOUBLE LUBRICATION LIFE**—50% more oil capacity and more efficient oil retention system cut G-E motor maintenance.

\*DuPont trade-mark.





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You have the opportunity to save *now* with smaller, lighter fractional-hp motors. General Electric, which pioneered these advanced motors three years ago, now offers prompt delivery on more than 850 *basic* models—including the right motors for *your* products.

**IMPROVED PRODUCTS**—plus savings in material, assembly, and shipping—await your conversion to these “years-ahead” G-E motors. For example: a compressor builder cut over-all manufacturing costs 25%. A pump manufacturer doubled sales of his streamlined product. A third manufacturer has reduced his shipping costs by 35%.

**PROVED PERFORMANCE** of smaller, lighter G-E motors

on over 4,000,000 products demonstrates the superiority of the features listed at left.

**TO HELP YOU** realize *all* these benefits, G.E. offers application aid from engineers who have helped apply these advanced motors to all types of products.

**WHY WAIT?** Prompt delivery of the G-E motors you need can help you carry out a quality-boosting, cost-cutting program on your products without delay. For full information, including case histories of actual cost savings with G-E fhp motors, contact your G-E Apparatus Sales Office today. Or write Section 702-23, General Electric Co., Schenectady, N. Y.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

# ideas

## you can use

### Source Inspection Cuts Costs, Boosts Quality

Supplier cooperation paid off for the W. A. Sheaffer Pen Co. It solved a costly quality control problem. It also permitted use of a raw material that was both more satisfactory and less costly. Sheaffer used to make the retractable tube in its Snorkel pen from 14 karat gold tubing. Reason for using this expensive material instead of ordinary stainless steel was because of its superior resistance to corrosion by many types of inferior fountain pen inks which are sold commonly.

Sheaffer cut costs and boosted quality going to a special alloy tubing made by Superior Tube Co. The switch had these direct benefits to Sheaffer:

- Direct manufacturing costs for each filling tube were cut 50%.
- Rigid specifications were set up to assure quality performance.
- 100% inspection of incoming material was replaced by scientific sampling procedures.
- Returns of defective material to the supplier were slashed drastically.
- Rejections of tubes for improper dimensions or defective material dropped to less than 0.5%.

The important point in this case history is not that Sheaffer cut material costs 50% by switch-

ing from gold to the special Superior alloy. Few PAs will ever have the chance to switch from 14 karat gold parts. Instead, it is the fact that important savings can be made by having the supplier perform much of the quality control service for you. When the filler tubes were made from gold, they were 100% inspected by Sheaffer. Every length of tubing with even a single defect was shipped back to the supplier. Frequently, as much as 50% of a shipment was returned. This meant not only heavy inspection costs but also extra handling time, shipping charges, upset production schedules and all-around inconvenience.

To find a more satisfactory method, representatives from Superior Tube Company met with Sheaffer personnel at the Sheaffer plant in Fort Madison, Iowa, and worked out a program which is believed to be unique both in method and results.

It has introduced an entirely new concept of raw material acceptability among fabricators of tubing stock; namely, that only defective pieces should be rejected rather than rejecting an entire length of tubing.

One of the first steps was to transfer the inspection chores from Sheaffer to Superior. This



Sample lengths of tubing for the Snorkel fountain pen's filler tube are carefully checked before tubing is processed at Sheaffer's plant. In addition to the outside diameter checking (shown here), tubing is also checked for inside diameter and surface condition.

saved rehandling and the cost of shipping back defective lengths. Furthermore, the supplier has better facilities for 100 percent inspection. All that was required was to establish complete confidence between the supplier and the customer. This, in turn, largely depended upon setting up at Superior the same inspection standards that Sheaffer maintained.

The three tubing variables inspected are outer diameter, inner diameter and surface condition. The first two are quantitative measurements and use stand-

(Please turn to page 134)

Ozone  
didn't K.O.  
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cable!



shock-tested for 6000 hours

**U.S. ROYAL MASTER**  
power cable still stands up!

Amazingly better than *any* of the five leading brands tested!

United States Rubber Company technicians tested U. S. Royal Master Power Cable against 5 leading competitive brands. Here's the test, and the results:

A sample of 5 KV unshielded U. S. Royal Master Power Cable and 5 other competitive cables were each bent into a U-shape, roughly 8 times overall diameter. Placed upright on a grounded metal plate, a conductor-to-plate potential of 40,000 volts was applied. All 5 competitive cables failed within 20 minutes to 35 hours. The U. S. Cable was still going strong after 6000 hours!

No other cable approaches U. S. Royal Master in performance and economy. Order cable from your distributor or write Electrical Wire and Cable Dept., United States Rubber Company, Rockefeller Center, New York 20, N. Y.



Adequate Wiring can be the two most important words in your manufacturing economy. Obsolete wiring can cause power failure, increase maintenance expenses and reduce your production. Make sure your present wiring is not only adequate for today's power needs, but also sufficient to carry the ever-increasing electrical loads required in your future growth.



Electrical Wire and Cable Department

**United States Rubber**

For More Information Circle No. 216 on Inquiry Card—Page 17





**Spikes reduce slipping on ball diamonds,**



**but ordinary shoes are SAFE SHOES**

**on low cost A.W. SUPER-DIAMOND**

**ECONOMY ROLLED STEEL FLOOR PLATE**

Ordinary flat-soled shoes—rolling stock, too—move safely over SUPER-DIAMOND's traction treads—from any angle of approach. The raised diamond pattern—40 steel diamonds to the step—has been exclusively designed and engineered for maximum foot safety at minimum cost.

No other floor plate can match A.W. SUPER-DIAMOND for safety, durability and easy maintenance at so low a cost. Write for detailed information.

- No matching problems
- Easily fabricated
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- Takes years of abuse

**A.W. SUPER-DIAMOND**  
**ROLLED STEEL FLOOR PLATE**

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**ALAN WOOD STEEL COMPANY**

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Other products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Sheets  
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For More Information Circle No. 217 on Inquiry Card—Page 17

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP . . . the world's only abrasive rolled steel flooring.



(Continued from page 132)

ard instruments — a micrometer for the OD and a go-no-go plug gauge for the ID. It was no problem to set standards for them.

Surface condition, however, is inspected visually without instruments. Since it is qualitative and depends largely on the judgment of the individual inspector, it was necessary to determine what surface condition was acceptable by Sheaffer.

The inspection procedure finally agreed upon at the meeting is as follows:

- Superior inspects every inch of tubing and removes any tubing length containing defects.

- Because of the possibility of human error, Superior then samples 75 feet of tubing selected at random from every 10,000 feet. If more than seven defects are found in the 75 feet, the entire 10,000 feet is re-inspected.

- When the tubing is received at Sheaffer, the inspection department there also statistically samples 75 feet of tubing selected at random from every 10,000 feet. If more than ten defects are found in the 75 feet (compared to seven defects at Superior), the entire lot is shipped back to Superior for re-inspection. The tubing is not inspected to determine which lengths contain defects—only the total number of defects in the 75 sample feet selected.

#### No More Rejections

Sheaffer has not rejected a single shipment of tubing since the system has been in effect. And the number of rejects of filler tubing caused by defective material has been kept well under one half of Sheaffer's one percent maximum.

The cooperation between manufacturer and supplier is so close that the inspection departments of the two firms exchange copies of their inspection reports as a matter of course.

The idea that rejections be based on individual filler tubes rather than entire lengths of tubing was proposed by Sheaffer's quality control engineer. Why, he argued, should an entire length of tubing (supplied by Superior

(Please turn to page 136)

# TORRINGTON SPHERICAL ROLLER BEARINGS



**"This flange guides the rollers to peak performance!"**

The center flange on the inner raceway of the TORRINGTON Spherical Roller Bearing positions the rollers to handle thrust loads. This accurate positioning also assures radial stability of the rollers under heavy loads—even at continuous high speeds and under conditions of misalignment.

This superior design feature is only one of many advantages you get when you specify TORRINGTON. For example, you get the service of TORRINGTON's experienced engineers, who will help you with design and maintenance problems—or design custom bearings for special applications.

For long, low-maintenance service in heavy-duty applications, order TORRINGTON Spherical Roller Bearings. They're available from stock with either straight or tapered bore, for shaft or adapter mounting.

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**TORRINGTON  
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Needle • Ball • Needle Rollers

# CM Lodestar®

(Continued from page 134)



**ENTIRELY NEW  
differently NEW**

## FEATURING:

- Push Button Control
- Self-Adjusting Heavy Duty Brake
- Sealed-in Lifetime Lubrication
- Overload Protection
- Full Enclosed Components
- Lowest Headroom
- "CM-Alloy" Flexible Link Chain

**CAPACITIES:** from 1/4 to 1 ton.  
Single and 3 phase. 1/4 ton model weighs only 51 pounds.

**\$149.50  
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## Built to serve you without costly maintenance



Lodestar is the first truly "heavy duty" version of the small electric hoist. The CM Lodestar is designed to operate without costly maintenance or interruptions in your work schedules. The initial cost is practically your only cost with a Lodestar... an extremely low cost indeed!

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For More Information Circle No. 219 on Inquiry Card—Page 17



in random lengths from five to twelve feet long) be rejected merely because it had one—or even several—defects? The filler tube is only two inches long—six to a foot of tubing—and it is possible to cut a great many pieces from the acceptable parts of a length of tubing after the defective portions have been eliminated.

Take, for example, a five-foot length of tubing with a half-inch defect one inch from one end of the tubing and a two-inch long defect three inches from the other end. If perfect, the tubing would furnish 30 two-inch filler tubes. The half-inch long defect one inch from one end means that one filler tube is lost there. The two-inch long defect three inches from the other end will cause a loss of two filler tubes from that end. With three filler tubes rejected, the tubing still furnishes 27 acceptable pieces.

On the other hand, if the five-foot length of tubing contained a defect throughout its length it could cause 30 rejectable filler tubes and the entire length of tubing would then be rejected.

The quality department at Sheaffer reasons that it is interested in the number of acceptable parts it can get from a shipment of tubing. This realistic approach has paid off in greatly reduced inspection costs and a close, workable manufacturer-supplier relationship.

The plan described here can be set up and operated efficiently not only where the part is short as compared to the length of tubing from which it is cut but also for longer parts—even where the full length of the tubing, as received from the supplier, is used in the part.

The tubing for the Sheaffer Snorkel pens is .0625 plus or minus .001 O.D. and .052 plus or minus .001 I.D. This tolerance is well within Superior's commercial tolerance for this size of tubing. Sheaffer cuts the tubing to two-inch lengths (one end on an angle) and mills a short slit on the tapered end to direct the fluid to the point of the pen.



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SPECIAL

# SPEEDI-DRI SPOTLIGHT

★ ★ ★  
SPECIAL

A REPORT TO MANAGEMENT ON INDUSTRIAL MAINTENANCE

VOL. II

FEBRUARY 1956

No. 1

## New Sol-Speedi-Dri Cuts Housekeeping Costs, Improves Plant Appearance

### "double S-d" Is New Buy-word for Sol-Speedi-Dri; Bag Has New Design

Just ask for *double S-d* when you want the finest of oil and grease absorbents! That's the new buy-word for the new, improved Sol-Speedi-Dri. Now it's not only easier on your maintenance budget—it's even easier to say!

#### NEW INSIDE AND OUT

Inside each bag of *double S-d* is an absorbent with new standards of efficiency and economy. Outside, the modern bag design shown at the right meets your eye. And between the bag design and the product are two sturdy kraft paper walls, plus a 90-lb. asphalt liner with sift-proof seams. This rugged protection insures the day in day out uniformity of new Sol-Speedi-Dri—guarantees safe, moistureproof handling and delivery from factory to warehouse to you.

#### ORDER YOURS NOW

Try the new, improved Sol-Speedi-Dri. See how much more



efficiently and economically it solves your floor maintenance problems.

### No. 1 Oil and Grease Absorbent Lasts Longer, Saves Labor, Keeps Floors Cleaner Than Ever

From the research laboratories of the Speedi-Dri Corporation has come news of dollars-and-cents importance to industrial maintenance men everywhere. Sol-Speedi-Dri—long the top-selling oil and grease absorbent in the nation—has been vastly improved, thoroughly field-tested. Now in full production, it's virtually a new product, meeting new, higher standards for efficiency, on-the-job economy, and safety underfoot.

#### LOWER VOLUME WEIGHT

The new Sol-Speedi-Dri, with its new uniform lower volume weight, insures greater floor coverage than ever before—and greater year-round economy as a result.

If you've heard that "all mineral absorbents are alike—all used to a degree of saturation, then thrown away," consider the relation between volume and weight, and the fact that all absorbents are sold by the pound—not by volume. When you throw away a heavier material, it represents a greater expense than a lighter material swept up from the same area. The cost per pound in terms of coverage is the vital factor.

#### ABSORPTION, RETENTION

But coverage has little meaning if the absorbent doesn't function efficiently on the floor. The new Sol-Speedi-Dri does. Its thirsty granules act like a poultice—leave the very pores of the floor clean, dry, and safe underfoot. And when swept up,



they retain their absorbed oil. There's no "leaking," no "scum" left on the floor. Thus floors last longer, and the possibility of floor failure from oil rot is eliminated.

#### DUSTLESSNESS

An absorbent that is dusty can cause costly maintenance problems, as well as discomfort for workers.

The new Sol-Speedi-Dri is the most dustless mineral floor absorbent made. Its harder granules are virtually dustfree—and show far less tendency to slake, cake or become slippery when moistened.

#### END-USE ANALYSIS

All the above factors contribute to a true end-use (cost vs. performance) analysis—the only way to judge any oil and grease absorbent. We confidently invite such an analysis of Sol-Speedi-Dri.

#### OUT OUR WAY

BY J. R. WILLIAMS



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# new products

## and cost-saving ideas

### Machine Sharpens Carbide Tools Without Diamonds

Sharpening carbide tools by electrospark machining instead of abrasive wheels is a new process now offered to industry by Ex-Cell-O Corporation, Detroit, Michigan. Known as "Method X," the process is currently available in a new tool sharpener, Style 43.

Designed primarily for off-hand sharpening of

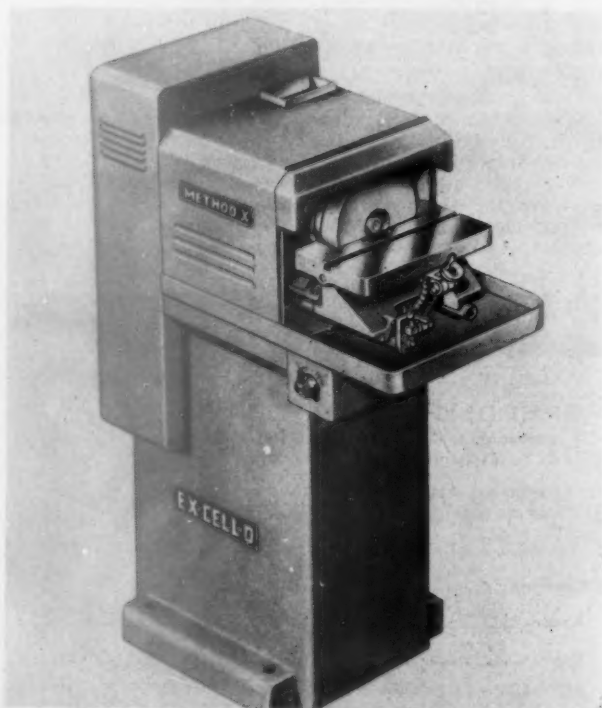
single-point solid carbide and carbide-tipped tools, the new machine functions without diamond wheels or abrasives. Its operating principle is relatively simple. For a wheel, the machine uses a ten-inch cast-iron disc, connected to serve as the negative terminal of an electric circuit. Similarly connected, the tool itself becomes the positive electric terminal. A semi-solid dielectric film applied to the disc provides a spark gap of proper distance between those terminals.

As the tool is oscillated across the wheel face, current pulsations are released as spark discharges. The high current densities of the single-pulse discharge overcome the tensile strength of the material and a minute particle is removed from the tool at this point. The resulting crater depth and diameter are proportionate to the energy discharged per pulse. Thus rough or finish cuts with resulting surface can be obtained by simply setting a power selector switch. Method X does not cause parallel or unidirectional tool marks, heat checks or grinding cracks.

Chief feature of the method is its capacity to work materials of extreme hardness. If it is an electrical conductor, virtually any metal can be worked on the new tool sharpener. No coolant is used in the sharpening process.

Special operator skills are not needed for tool sharpening by the Method X process. Because the operation is much like conventional off-hand grinding, an experienced grinder can quickly adapt his knowledge to the new technique.

For More Information Circle No. 37 on Inquiry Card—Page 17



# G.E. BUILDS THEM

## trim

Modern, goodlooking styling. Hammered soft gray finish lends itself to any interior of stores, institutions, offices or factories.

## tough

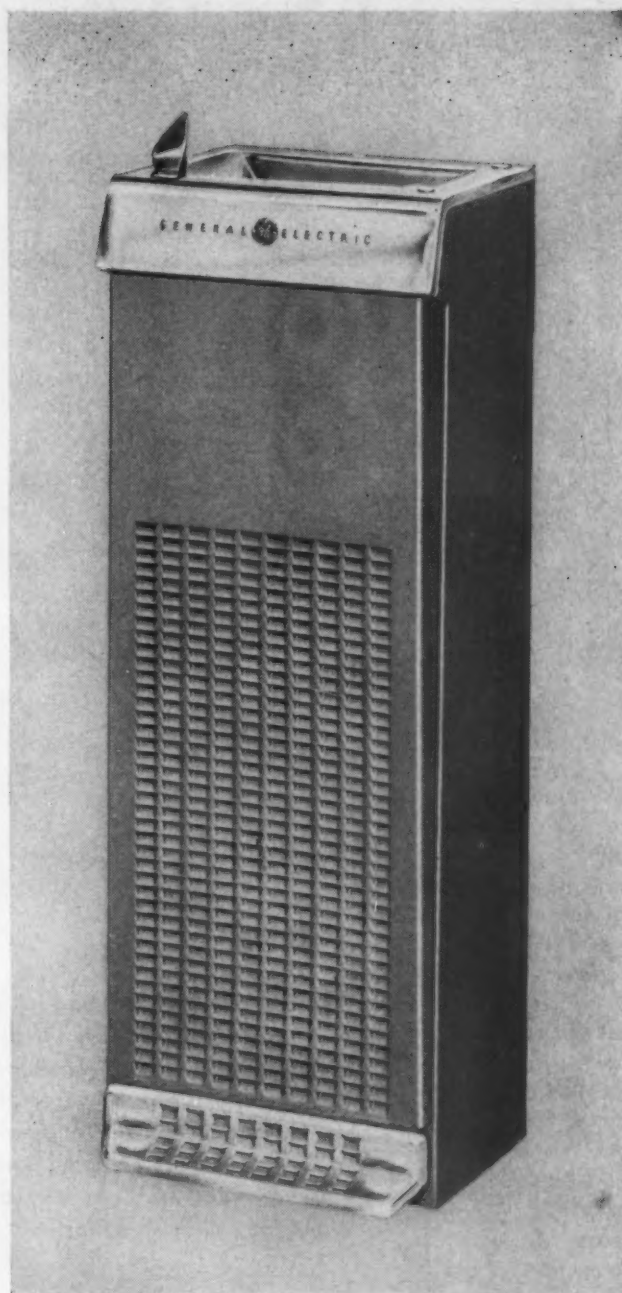
Equipped with time-tested compressors—the same used in millions of G-E home refrigerators. Heavy gauge steel cabinet.

## tidy

Anti-splash basin avoids splattering of bubbler stream. G.E.'s full-width, curved foot pedal provides easy water control without scuffing shoes or stubbing toes.

## and tiny

Take up to 30% less floor space. Fit easily in shallow corners. Over-all depth is up to 5" less than other foot-operated coolers. For easier maintenance and adjustment the front panel snaps on and off.



## WATER COOLERS

*for offices, stores, institutions and factories*

These up-to-date engineering features of G-E Water Coolers assure dependability and economy for the owner, ease of operation for the user and compact design for the architect. This quality is backed by the standard G-E product warranty plus 5-year replacement agreement. And it is easy to specify G-E Coolers—they come in capacities from 2.85 to 21.5 gallons per hour. So,

whenever you include water coolers in your floor plans, be sure to call your local G-E Water Cooler dealer or write to General Electric Company, Commercial and Industrial Air Conditioning Department, 5 Lawrence St., Bloomfield, New Jersey.

**GENERAL  ELECTRIC**





# YOUR BEST BET

for help on your  
**HOSE PROBLEMS**

**ACME**  
Hose Products  
for

Acid  
Air  
Brewers  
Beverage  
Creamery  
Dust & Air Duct  
Fuel Oil  
Garden  
Gasoline  
Paint & Solvent  
Rock Wool  
Sand Blast  
Spray  
Steam  
Steam Iron  
Suction  
Swimming Pools  
Tubing,  
Cloth Inserted  
Vacuum  
Waste Disposal  
Water  
Welding

Your ACME man has a bag full of ideas on how to cut costs, improve the product, add sales appeal with ACME RUBBER HOSE. He has behind him 53 years of ACME research, engineering and development in all types of hose. Put this know-how to work on your problems and get the top return for your hose dollar.

**PUT THE JOB  
UP TO . . . . .**

# Acme

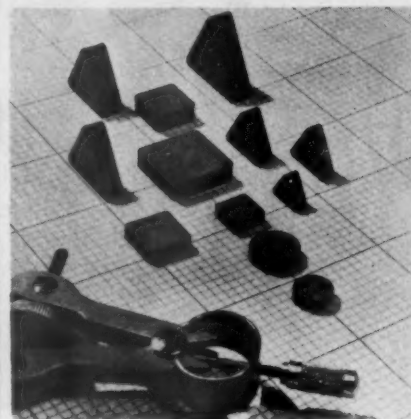
**HOSE SPECIALISTS**

**ACME RUBBER MANUFACTURING CO.**  
1437 EAST STATE STREET TRENTON, N. J.

For More Information Circle No. 222 on Inquiry Card—Page 17

new  
products

## Throwaway Tool Inserts



Carmet Division of Allegheny Ludlum Steel Corporation announces a complete line of throwaway tool inserts for use in mechanical tool holders. These blanks are available in both precision ground and utility styles, ground top and bottom. They are available in Carmet's new "600 Series" steel cutting grades as well as those grades recommended for machining cast iron and non-ferrous metals. Blanks are available in 12 different sizes—rounds, squares, triangles.

Circle No. 38 on Inquiry Card—Page 17

## Butyrate Coating Protects Aluminum Equipment

A butyrate, water - white, weather-resistant lacquer is said to afford long-life protection for aluminum-fabricated equipment, despite hard winds, heavy weather and corrosive attack. It is easily applied by usual spray methods. The coating dries at room temperatures in about 15 minutes to give a satin-smooth finish. The lacquer, marketed by Egyptian Lacquer Mfg. Co., South Kearny, N.J., is expected to be a particular boon to manufacturers and operators of transportation equipment, especially of long-distance industrial trailers.

Circle No. 39 on Inquiry Card—Page 17



*The Record's Clear...*  
*you save money with every turn*  
*of the screw with*  
**AMERICAN PHILLIPS**

It's true — you can save up to 50% of your total fastening costs by switching to American Phillips Head Screws.

And the more complex your assembly — like a modern three-speed, high fidelity record player — the more you can save in every way. You save in faster assemblies because American Phillips are faster to drive than slotted screws. You save by cutting rejects of marred finished surfaces because the driver can't slip out of an American Phillips.

What's more, you get the famous American quality and the precision American deliveries that keep fast-paced assembly lines on schedule. *Whatever* you fasten, you can put American Phillips to your profit at every turn.

Like proof? Write.

✕ marks the spot . . . the mark of extra quality

**AMERICAN SCREW CO.**

PHILLIPS HEADquarters  
 WILLIMANTIC, CONNECTICUT

Plants at Willimantic, Conn. and at Norristown, Pa.  
 Warehouse and office at Chicago  
 Office, Detroit, Michigan



YOU CAN GET 42 STOCK SIZES  $\frac{3}{16}$ " to 3"



**HALLOWELL**

**SOLID STEEL  
COLLARS**

from your  
industrial distributor

All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking UNBRAKO Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

HALLOWELL POWER TRANSMISSION DIVISION

**SPS**

JENKINTOWN PENNSYLVANIA

For More Information Circle No. 224 on Inquiry Card—Page 17

## Is Space an Important Factor?

Then Use This Distinguished Line  
of Close-Coupled Pumps




These GMC Pumps are ideal for a multitude of jobs. Smooth and efficient whether vertical, horizontal, up-side-down or any inclination. Low first cost, low power and maintenance costs. Top quality "by Aurora."

**Caps. 10 to 800 G.P.M.  
Heads to 250 Ft.**



**Type GMC  
Aurora Close-Coupled  
Pump**




**Write TODAY  
for  
CONDENSED  
CATALOG "M"**

DISTRIBUTORS IN PRINCIPAL CITIES

also  
BULLETIN 120

**AURORA® PUMP DIVISION**  
THE NEW YORK AIR BRAKE COMPANY

12 LOUCKS STREET

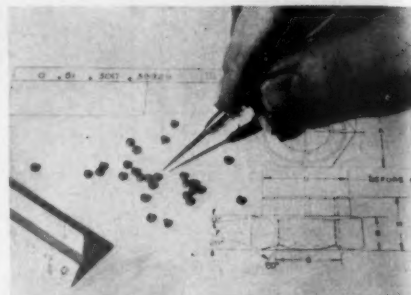
AURORA • ILLINOIS



For More Information Circle No. 225 on Inquiry Card—Page 17

new  
products

## Tiny Self-Locking Nuts



A line of remarkably tiny, self-locking fasteners for precision instruments and electronic fastening applications is being introduced to meet the increasing demands of miniaturization for ever smaller precision fasteners. These nuts range in size from 0-80 (less than  $\frac{1}{8}$ " across its largest dimension) to 4-48. The nut is a one-piece, all-metal fastener that functions as a stop nut as well as a locknut. It is being made in brass, either plain or cadmium plated, or aluminum by Standard Pressed Steel Co., Jenkintown, Pa.

Circle No. 40 on Inquiry Card—Page 17

## Manual Bending Tubes To Exact Tolerances

A crank-operated tube bender, equipped with a worm gear, will manually bend annealed or  $\frac{1}{8}$ "H cold drawn stainless steel tubing to exact tolerances. The operating mechanism consists of a one-piece frame provided with bronze worm wheel and hardened steel worm with ratio of 60 to 1. The tool is designed to enable the operator to produce bends up to 180° in one continuous smooth operation without strain or fatigue. The slide block, furnished with the bender, has grooves for six tube sizes:  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{3}{4}$ " OD. The tool is a product of Parker Appliance Co., 17325 Euclid Ave., Cleveland 12, Ohio.

Circle No. 41 on Inquiry Card—Page 17



Great Ideas of Western Man . . . ONE OF A SERIES

*Wm Penn*

**WILLIAM PENN** *on freedom under government*

*It is certain that the most  
natural and human government  
is that of consent, for that  
binds freely . . . when men hold  
their liberty by true obedience  
to rules of their own making.*

(Essay towards the Present and Future Peace of Europe, 1693)

**CONTAINER CORPORATION OF AMERICA**



Artist: Horace Paul



**Revere's**  
**GREAT NEW PRODUCT...**

# Tube-In

*It's a single piece of metal...*

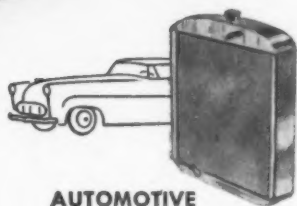


Patents Applied for

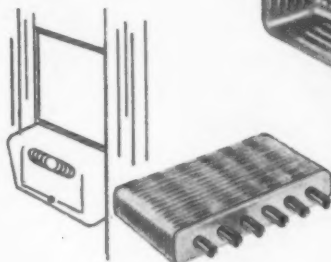
*Available in Copper, Brass,  
other Copper Alloys, and Aluminum*

# Strip

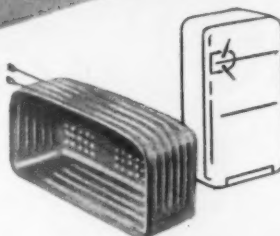
not a "sandwich", not welded, brazed or bonded



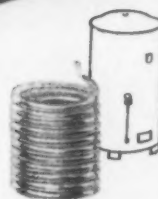
AUTOMOTIVE



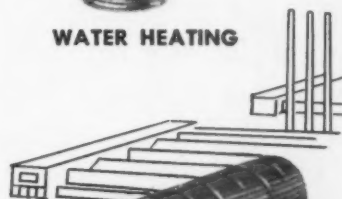
AIR CONDITIONING



REFRIGERATION



WATER HEATING



PROCESSING

Here, for the first time, is a combination of tube and strip that is made from a single piece of metal! No joints! The product of intensive development by Revere's Research and Development Department, which sought and found a brand new way to give American industry tube plus strip that is more economical to buy, more economical to work, stronger and more efficient in performing 1,001 tasks.

*Remember Revere Tube-In-Strip is solid, not two strips welded, brazed, or bonded together.*

What does this mean to you? You buy strip, fabricate it as you wish, stamping, bending or forming it, and then as a final operation inflation expands the integral channels into tubes. Expanding in the open, the tubes are round; by expanding into dies,

the tubes can be made rectangular, fluted, half-round, hexagonal, etc.

**METALS:** Copper, Brass, other Copper Alloys, Aluminum, many others.

**ECONOMY:** You save in first cost, and in fabrication. New and improved designs are made possible. The web between the tubes conducts heat faster. The vastly increased structural strength means you can use lighter gauges, saving in weight and in price.

The applications of this radically new, different and superior Revere Product are unlimited. We most proudly present Revere Tube-In-Strip to the designers and manufacturers of American Industry. The Revere Technical Advisory Service and the Research and Development Department will gladly collaborate with you in taking full advantage of this marvelous new material.

## REVERE

### COPPER AND BRASS INCORPORATED

*Founded by Paul Revere in 1801*

230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.  
Sales Offices in Principal Cities, Distributors Everywhere.

#### SOME OBVIOUS USES

##### REFRIGERATION

Condensers  
Evaporators  
Cooling Coils  
Cold Walls

##### AIR CONDITIONING

Condensers  
Evaporators

##### HEAT EXCHANGERS

Process Industries  
Chemical Industries  
Petroleum Industry

##### INSTRUMENT LINES

##### WATER HEATERS AND COOLERS

Domestic  
Commercial

##### RADIANT PANEL HEATING

##### BASEBOARD RADIATORS

##### AUTOMOTIVE

Car and Truck Radiators  
Heating and Cooling Panels  
Transmission Oil Coolers

##### AIRCRAFT

##### SOLAR HEATING

##### ELECTRICAL INDUSTRY

Oil Coolers  
Gas and Fluid Heat Exchangers

##### AUTOMATION

Control  
Recording  
Metering

##### FOOD PROCESSING

##### BEVERAGE INDUSTRIES

##### ARCHITECTURE AND BUILDING

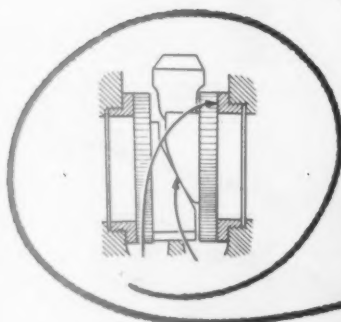
Structural  
Decorative  
Functional

**MANY, MANY OTHER APPLICATIONS IN EVERY INDUSTRY**

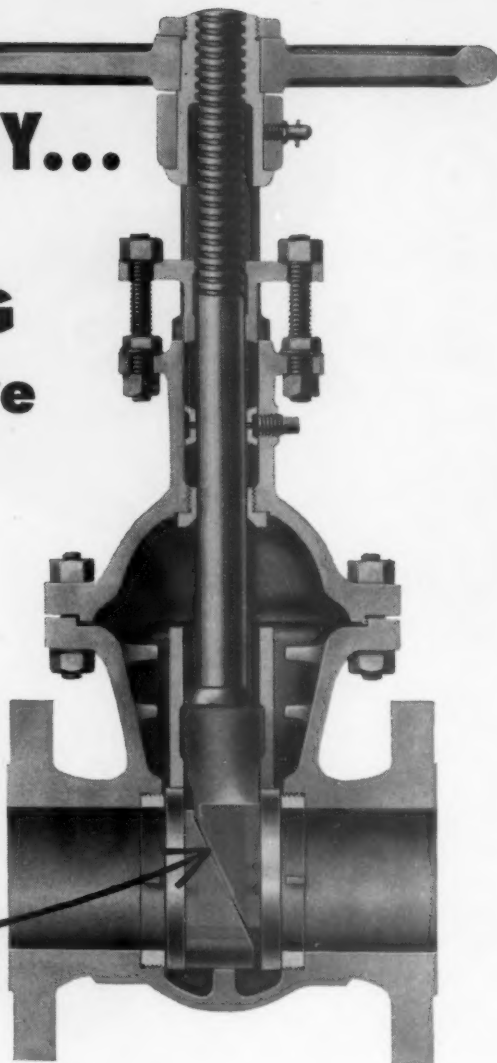


# RELIABILITY...

## in the DARLING gate valve picture!



*Example: Where severe line condition forces valve seats out of alignment, Darling's unique wedging principle allows discs to adjust tightly against both seats.*



**T**HERE'S a sure way of minimizing valve leakage, down-time and a lot of costly maintenance for years on end. Try Darlings!

Darling's fully revolving double disc parallel seat principle does the trick . . . by distributing disc and seat wear uniformly, by compensating for valve body distortion, assuring tight closure under the most adverse conditions.

Darling gate valves are made in metals, types and sizes for most services . . . and for pressures up to 1500 pounds. Name your service and write for Bulletin No. 5003.

**DARLING VALVE & MANUFACTURING CO.**  
Williamsport 7, Pa.

*Manufactured in Canada by  
Sandilands Valve Manufacturing Co., Ltd., Galt 19, Ont.*



For More Information Circle No. 227 on Inquiry Card—Page 17

### new products

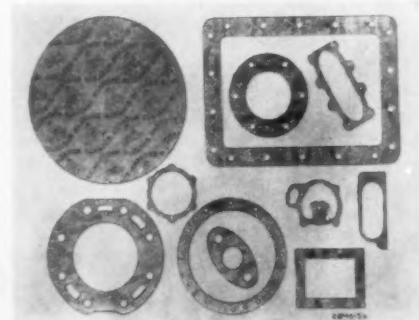
#### New Design Gives Motor Same HP in Less Space



Conforming to the dimensional standards of N.E.M.A., a re-rated, improved motor design has been placed in production by Electro Dynamic Div., General Dynamics Corp., Bayonne, N.J. Designed more compactly than previous types, the same hp is provided in less space and with reduced weight. This type H motor has a low air opening in the end-bell which protects the winding from liquids and abrasive dust. The current standard ratings are available in frame sizes 182, 184, 213, 215, 254U and 256U.

Circle No. 42 on Inquiry Card—Page 17

#### Gasketing Material Resists Harmful Liquids



A tight sealing gasketing material, known as Garlock 662, has been developed primarily for use in the oil and chemical industries in equipment where harmful liquids are present.

(Please turn to page 148)



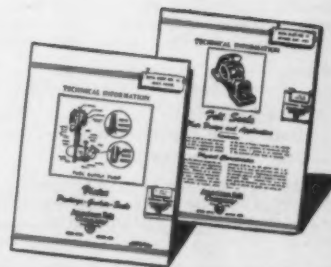
The seals shown here are a combination of felt for shaft lubrication, plus spring-loaded leather or rubber for exclusion of water, fumes, dust. Such seals are made by a number of companies, in standard and special diameters. List of firms on request. Felt seals can also be made impervious by metal enclosures, or by the use of felt with one or more laminations of synthetic rubber. Just remember that felt is so versatile that it can either lubricate or seal, or both at the same time. On request we will collaborate on designs and specifications. Write for Data Sheet No. 11, "Felt Seals, Their Design and Application," and for No. 14, "Vistex, Packings, Gaskets, Seals."



GENERAL OFFICES: 74 GLENVILLE ROAD, GLENVILLE, CONN.

SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Greenville, S. C., Dallas, San Francisco, Los Angeles, Portland, Seattle, Montreal.—PLANTS: Glenville, Conn.; Franklin, Mass.; Newburgh, N. Y.; Detroit, Mich.; Westerly, R. I.—ENGINEERING AND RESEARCH LABORATORIES: Glenville, Conn.

For More Information Circle No. 228 on Inquiry Card—Page 17



**FREE!** Write for Data Sheets Nos. 11 and 14.

# PAGE chain link FENCE

America's First Wire Fence—since 1883



• You need a fence if your property lacks protection against common hazards. And you certainly want time-tested quality in the safeguard you provide. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

*Write* to **PAGE FENCE ASSOCIATION, Monessen, Pa.**, or look in *Thomas' Register* for listing of *Page Chain Link Fence Distributors* under "PAGE STEEL AND WIRE DIVISION," or see *MacRae's Blue Book* for listing under "FENCING, WIRE, LINK," or consult *Sweet's Industrial Construction File*.  
PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.  
For More Information Circle No. 229 on Inquiry Card—Page 17



## Seven Major Consolidated Freightways Terminals Save 25% with *Nutting* Tow-Line Trucks

In addition to 25% savings in cross dock handling, Mr. J. H. Howay, Supt. of Terminals, reports reduced damages, speeded up departure schedules and fewer astray shipments.

In motor freight terminals, plants and warehouses, Nutting Tow-Line Trucks are cutting costs daily. Here's why . . .

- |                           |                                  |
|---------------------------|----------------------------------|
| Less Supervision          | Reduced Handling Cost            |
| Unattended Transportation | No Unpleasant Exhaust Fumes      |
| Less Maintenance Cost     | No Oil & Scum Deposits on Floors |

Whatever your loads and operating conditions—whether for Tow-Line Systems or for manual operation, there are Nutting Trucks to exactly suit your needs. Investigate cost-cutting Nutting Trucks today.

For complete details write for your copy of Bulletin 54-TL. Or call your Nutting Sales Engineer . . . he's listed in the yellow pages under "Trucks" or "Casters".

### NUTTING TRUCK & CASTER CO.

1271 DIVISION ST., FARBALUT, MINN.

For More Information Circle No. 230 on Inquiry Card—Page 17

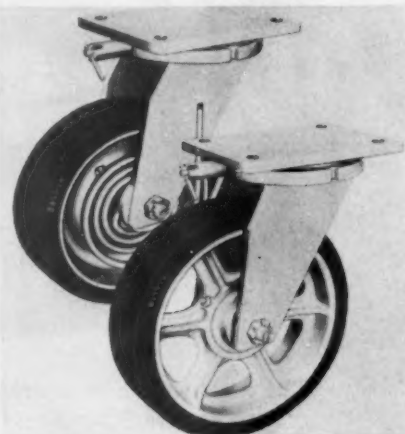
QUALITY  
BUILT  
Since 1891

## new products

(Continued from page 146)  
ful liquids are encountered. It is a cork-base paper, impregnated with a water, oil and gasoline-resistant latex. The latex impregnation permits use of gasketing at temperatures as high as 300F, whereas the maximum for ordinary vegetable fiber gasketing is 212 F. The latex binder is not susceptible to changes in moisture content thus eliminating shrinkage. This elimination of shrinkage permits users to cut their own gaskets from this material far in advance of needs. It is made by Garlock Packing Co., Palmyra, N.Y.

Circle No. 43 on Inquiry Card—Page 17

## Heavy Duty Casters



A line of 8, 10 and 12-inch casters, engineered to meet military specifications for precision rigid and swivel casters, is announced by the Bassick Co., Bridgeport 2, Conn. The casters support as much as 950 lb for long distances at towing speeds up to 20 mph. They are ideal for movement of raw stock and finished goods, as well as engine stands, assembly line dollies and similar applications. The casters feature sealed swivel and wheel bearing assembly to keep out dirt, water and foreign matter. Four-position locks prevent accidental swiveling.

Circle No. 44 on Inquiry Card—Page 17



G-E LAMPS GIVE YOU MORE FOR ALL YOUR LIGHTING DOLLARS



## How uniform life, light output and freedom from defects in G-E lamps save you money

**E**LECTRICITY and maintenance labor take 90% of the money you spend for lighting—only 10% goes for lamps. To save on these two big items, you need uniform lamp performance. Uniformity of General Electric lamps is proved by the results of tests on hundreds of thousands of G-E lamps each year.

The above photo shows the life test. The results of this test, like those of hundreds of other tests, checks and inspections are checked and verified by an independent testing laboratory. To the lamp user, this means:

**UNIFORM LIFE**—You save time, trouble and money. 99 out of 100 General Electric 40-watt fluorescent lamps will last more than a year in single-shift plants (2500 hours service)! 98 out of 100 will still be in service after a year's service in double-shift plants (4000 hours service)!

**UNIFORM LIGHT OUTPUT**—You get all the light you pay for. Less than 1% of all G-E 40-watt fluorescent lamps are as much as 5% below the published rating of 2500 lumens. And

for the past 18 months, these lamps have averaged 39 watts. That's 64 lumens per watt!

**UNIFORM FREEDOM FROM DEFECTS**—You cut maintenance costs. 99.9% of General Electric 40-watt fluorescent lamps are free from all defects that could affect performance in service.

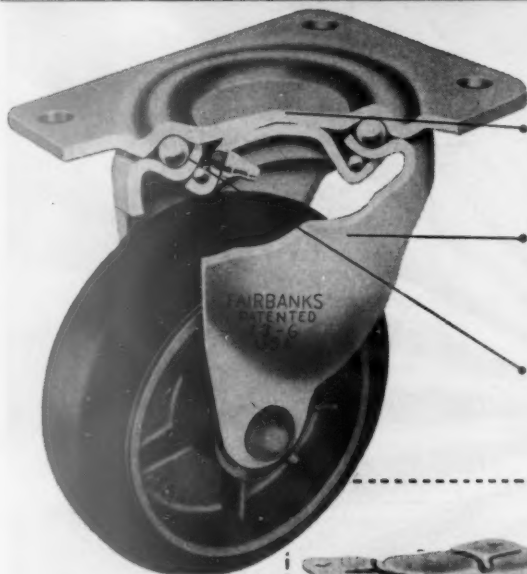
For more facts on how General Electric gives you more for all your lighting dollars, write for the free 16-page Progress Report to Lamp Users: Large Lamp Department, General Electric, Dept. 482 P-2, Nela Park, Cleveland 12, Ohio.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

# ACHIEVEMENT IN CASTER DESIGN FAIRBANKS

"LOCKWELD" Swivel Casters — Without King-Pin!



**CHECK these unmatched advantages:**

- No King-Pin. Patented "LOCK-WELD" construction eliminates the major cause of caster failures.
- Patented leg design—spherical shape provides greater strength through better dispersion of shocks and overloads, easier swiveling under load.
- Larger raceways and ball bearings — perfectly aligned by the rigid welded structure — give faster, easier swiveling action.

Fairbanks Series "23" double ball race swivel casters, for medium duty, sizes 3" to 8".



Fairbanks Series "33" rigid casters, match Series "23" casters in height, sizes 3" to 8".

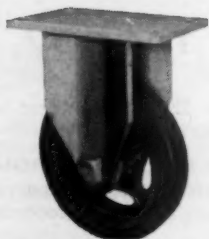


Fairbanks Series "21" single ball race swivel casters, for regular duty, sizes 2" to 6". Matching rigid Series "31" casters available.

## HEAVY DUTY STEEL CASTERS



Fairbanks Series "27" double race swivel casters, for heavy duty, sizes 6", 8" and 10".



Fairbanks Series "37" rigid casters match the Series "27" casters in height, sizes 6", 8" and 10".



Fairbanks Series "500" Vulcanized Rubber Tired Wheels, roller bearing, sizes 3" to 18". Standard of the industry.

**YOURS ON REQUEST:** Casters and wheels catalog complete with specifications and details. Write for your free copy today.

Order Fairbanks products through your local distributor who is always ready to serve you.

## THE Fairbanks COMPANY

393 Lafayette Street, New York 3, New York  
Branches: New York 3 • Boston 10 • Pittsburgh 22 • Rome, Ga.  
Valves • Truck • Casters • Wheels • Dorr & P.C. Unions

new  
products

## New Low Cost Nibbler



A new electric metal nibbler, high-powered to cut #18 gage in mild steel (.058"), has been designed by the Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill.

The manufacturer states that it nibbles metal away, such as aluminum, tin and similar sheet metals, quickly and easily. It cuts in a series of punches instead of using a shearing technique.

This versatile nibbler takes 2500 strokes per minute, with a .16" stroke length. Lightweight at only 5 and 1/2 lbs., it is expertly balanced, thus allowing the operator a free hand to guide or hold the material being processed.

The manufacturer claims that this metal nibbler is the lowest-priced tool of its type being sold today.

Circle No. 45 on Inquiry Card—Page 17

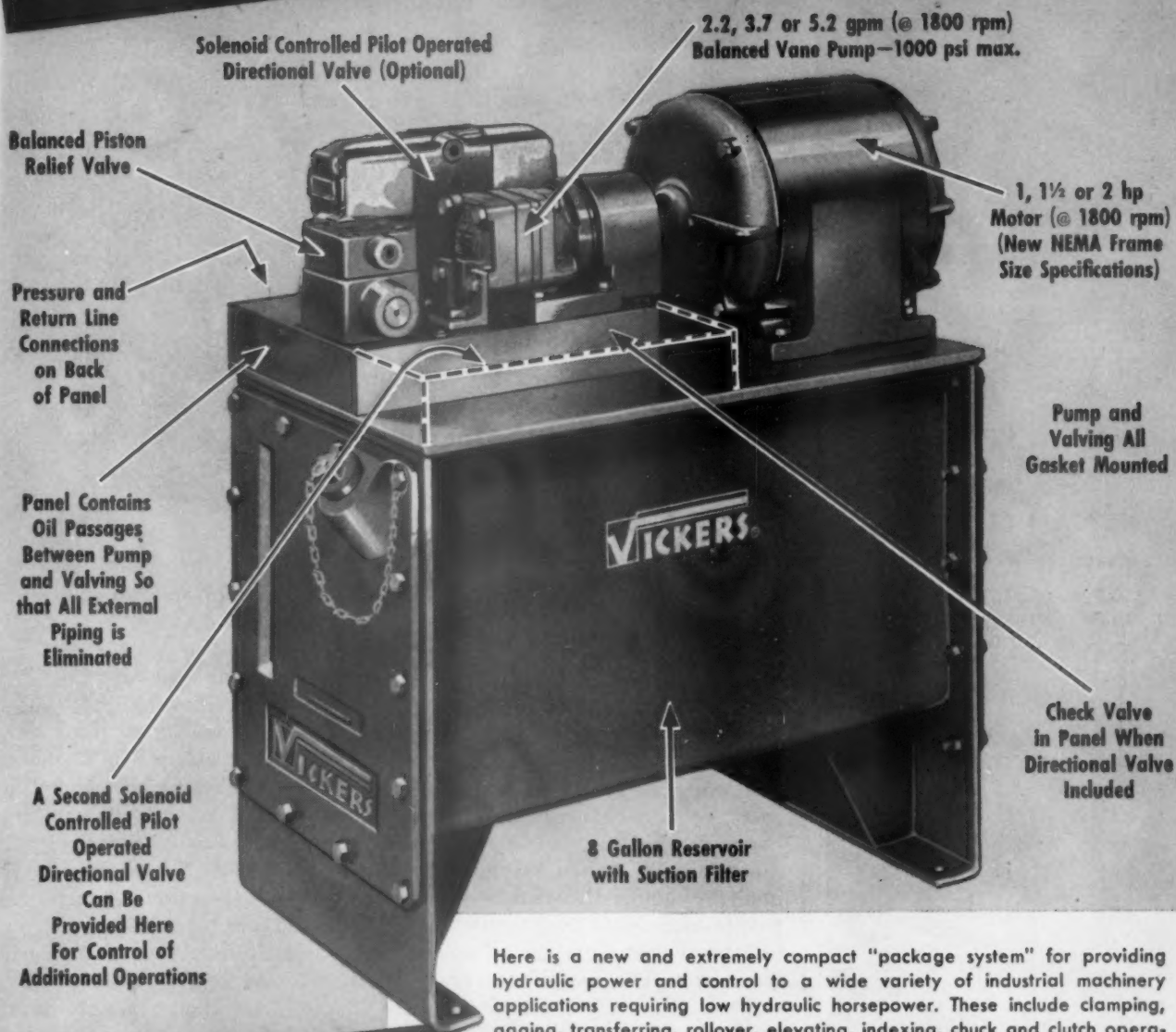
## Lamp Ballast is Lighter, Costs Less

A new rapid-start ballast for high-current fluorescent lighting, 25 per cent lighter and reduced 15 per cent in list price over the model it replaces, has been announced by the General Electric Company's Ballast Department, Schenectady 5, N.Y. Designed as an integral part of 800 milliamperere lighting systems, the new

(Please turn to page 152)

For More Information Circle No. 232 on Inquiry Card—Page 17

# A NEW IDEA... in hydraulic power and control systems



Here is a new and extremely compact "package system" for providing hydraulic power and control to a wide variety of industrial machinery applications requiring low hydraulic horsepower. These include clamping, gaging, transferring, rollover, elevating, indexing, chuck and clutch operations, etc.

Note the many features indicated on the photograph above. The result is improved and simplified hydraulic design... also reduced installation and maintenance costs. This "package system" has great flexibility... is available in a wide variety of combinations of standard components assembled to suit individual requirements. Pretested and ready for immediate operation, it has also the advantage of undivided Vickers responsibility. For further information, ask for installation drawings 178706-8.

**VICKERS®**  
Series T8  
HYDRAULIC  
PIPELESS  
POWER PACKAGE\*

## VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

1566 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: • ATLANTA • CHICAGO • CINCINNATI  
CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo)  
MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA  
(Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER  
ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA  
WASHINGTON • WORCESTER

IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

\*These "package systems" supplement the Vickers line of standard hydraulic power units.

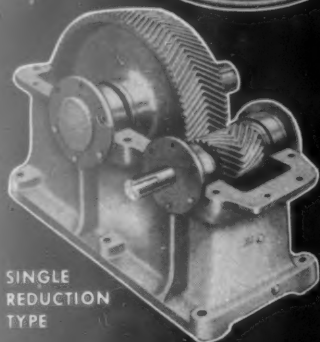
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921



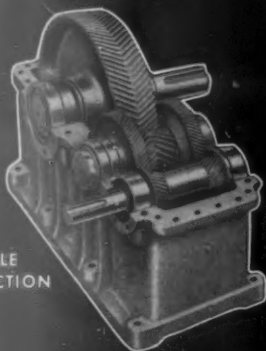
# HERRINGBONE REDUCERS

...by

PHILLIE GEAR



SINGLE REDUCTION TYPE



DOUBLE REDUCTION TYPE



TRIPLE REDUCTION TYPE

For high horsepower reduction with heavy shock loads, Philadelphia Herringbones are the answer. These quality units are available in Single, Double and Triple Reductions offering wide selection of capacities and ratios. Continuous tooth type herringbone gears assure evenly distributed pressure over each tooth from top to working depth line — which means long life, minimum vibration, quiet operation and maximum transmission . . . Be convinced, send for Catalog H-55.

**PHILADELPHIA GEAR WORKS INCORPORATED**  
 ERIE AVE. AND G ST., PHILADELPHIA 34, PA.  
 NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA  
 BALTIMORE • CLEVELAND  
 Virginia Gear & Machine Corp., Lynchburg, Va.  
 Industrial Gears & Speed Reducers • Lim-Torque Valve Controls  
 Established 1892

For More Information Circle No. 234 on Inquiry Card—Page 17

new products

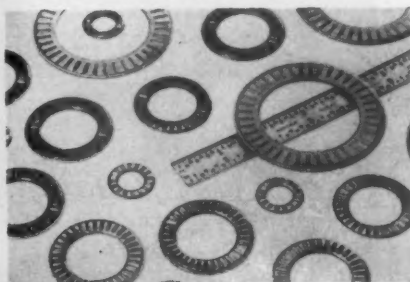
(Continued from page 150)

ballast will operate two 96T12 lamps in indoor industrial and office use at temperatures down to 50°F.

Watts loss on the new ballast has been reduced 10 per cent, and over-all length has been cut by 25 per cent, while retaining the same cross section dimensions.

Circle No. 46 on Inquiry Card—Page 17

## Needle Bearings for Heavy Loads



Manufacture of thin, compact and economical needle thrust bearings designed specifically to meet growing thrust loads created by continuing increases in power and speed was announced by the Torrington Co., Torrington, Conn. The manufacturer described the new bearings as smaller in outside diameter than currently available bearings and no thicker than an ordinary thrust washer—only .078 inch.

It said they will support heavy loads at moderate speeds and can be used at rotative speeds to 5,000 rpm. Already used in automatic transmissions, they have been found satisfactory for installations in which the capacity of ordinary thrust washers has been exceeded.

The new bearings have chrome steel, precision ground needle rollers to distribute loads evenly and incorporate unique retainer construction developed by Torrington.

Circle No. 47 on Inquiry Card—Page 17



If you have a head for value

Order any of the full line of STAR Hand and Power Hacksaws, Metal and Wood Cutting Bandsaws and Hacksaw Frames from your Industrial Distributor.

Industry prefers STAR quality, prefers the blades made of carefully heat-treated, top-quality steel, fabricated on specially designed equipment—because STAR consistently delivers fast, economical metal cutting and long blade life.

Be sure to ask your Industrial Distributor for STAR "Moly" High Speed Steel Blades. STAR developed this high speed, heavily-alloyed steel blade of molybdenum. Remember, "Moly" High Speed blades outlast standard steel blades 10 to 1, cut as well as the best high speed steel blades made, but are substantially lower in cost.

**FREE!** Ask your Industrial Distributor for a supply of our NEW Metal Cutting Booklets and Wall Charts.

1887



Sold Only Through Recognized Distributors

**CLEMSON BROS., Inc.**  
 MIDDLETOWN, N. Y., U. S. A.

Makers of Hand and Power Hacksaw Blades, Frames, Metal & Wood Cutting Band Saw Blades and Clemson Lawn Mowers.

For More Information Circle No. 235 on Inquiry Card—Page 17

PURCHASING

# CHASE *the name to remember*

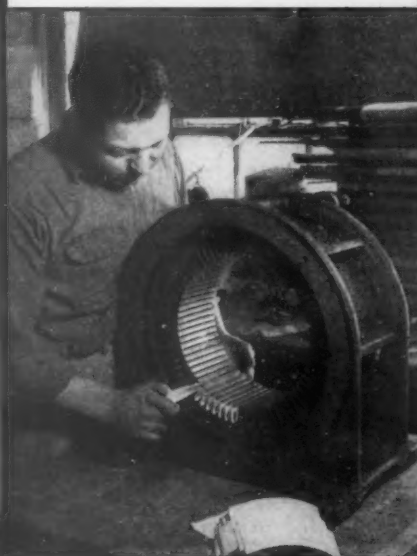
*for*

## LAMINATED INSULATION MATERIALS



◀ Typical of the many Chase products designed for the electrical industry is this generator application where rag paper or kraft paper is combined with DuPont Mylar® to suit your particular insulation requirements. Chase Slot Insulation comes in sheets, rolls or cuffed.

Complete technical data on Glasterra, or Chasbestos (a combination of asbestos sheet and polyester film) will be sent you upon request. Specifications and samples of all Chase products are available . . . and Chase engineers will gladly help you solve your electrical insulation problems. Chase & Sons, Inc., Randolph, Massachusetts. ▼



▲ Another application where Chase laminated insulation material is used is shown above where double thickness slot insulation is being used in a 15 HP A.C. induction motor. All Chase products are manufactured to meet the highest specifications . . . of the best materials available.

▲ Diversification of Chase product line is further indicated by this illustration showing a development engineer at Kennecott Wire & Cable Co. examining magnet wire insulated with Chase Glasterra Tape. Glasterra is a combination of asbestos sheet, glass yarn or fabric and silicone varnish.

# CHASE

ELECTRICAL INSULATING TAPES AND MATERIALS

For More Information Circle No. 236 on Inquiry Card—Page 17

# PRATT & WHITNEY

## PLUG GAGES

STEEL OR CARBIDE



*Quality*  
**PAYS  
OFF!**

### GREATER DEPENDABILITY

Because you *know* that P&W Gages are accurate! *Controlled* precision lapping by an exclusive P&W process eliminates out-of-roundness, assures correct thread angle, produces a better gaging "feel." In addition to many in-process inspections, P&W Plug Gages must pass a rigid final inspection in our constant temperature room . . . using our own internationally recognized Standard Measuring Machine and other P&W basic measuring equipment.

### LOWER GAGING COSTS

Because P&W Gages give far longer wear life. Only special specification alloy steels or carbides are used . . . and are carefully analyzed before acceptance. Exclusive Pratt & Whitney *controlled* precision lapping produces precise lead and thread form . . . assures smooth, uniform, longer-wearing thread surfaces.

SEND NOW FOR COMPLETE INFORMATION . . . use the coupon on the facing page to send for your copy of Circular No. 506-1 fully describing Pratt & Whitney Thread Gages.



**PRATT & WHITNEY COMPANY**

INCORPORATED

19 CHARTER OAK BOULEVARD  
WEST HARTFORD 1, CONNECTICUT, U.S.A.

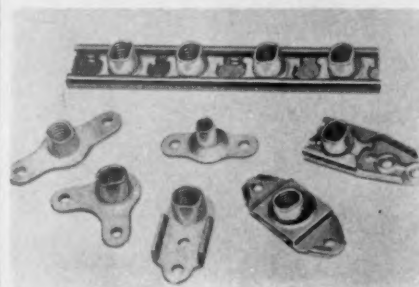
BRANCH OFFICES AND STOCK . . . BIRMINGHAM\* • BOSTON • CHICAGO  
CINCINNATI • CLEVELAND • DALLAS (Southwest Industrial Sales Company)  
DETROIT • LOS ANGELES • HOUSTON (Tri-Tex Machine & Tool Co.) • NEW YORK  
PHILADELPHIA • PITTSBURGH • ROCHESTER • SAN FRANCISCO • ST. LOUIS  
EXPORT DEPT., WEST HARTFORD

\* OFFICE ONLY

FIRST CHOICE FOR ACCURACY SINCE 1860 MACHINE TOOLS • CUTTING TOOLS • GAGES

new  
products

### Light Steel Nuts Stand 800 F Temperatures



A line of lightweight stainless steel anchor and gang channel locknuts, series 70LHA401 and 70LHG41, has been designed for use to 800 F and for applications where non-magnetic requirements exist. They are claimed to be the lightest available nuts qualified to meet these conditions. Savings in weight over previous designs range from 16% to 63%. The design of the nuts is intended for blind mounted applications where the nut is fixed to the basic structure to simplify work on inaccessible locations. Thread sizes available for the anchor line are 6-32, 8-32, 10-32 and 1/4-28. Same sizes are available for the channel nuts except the 6-32 one. The manufacturer is Elastic Stop Nut Corp. of America, Union, N.J.

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### Rubber-Sized Fibre Resilient, Wear-Resistant

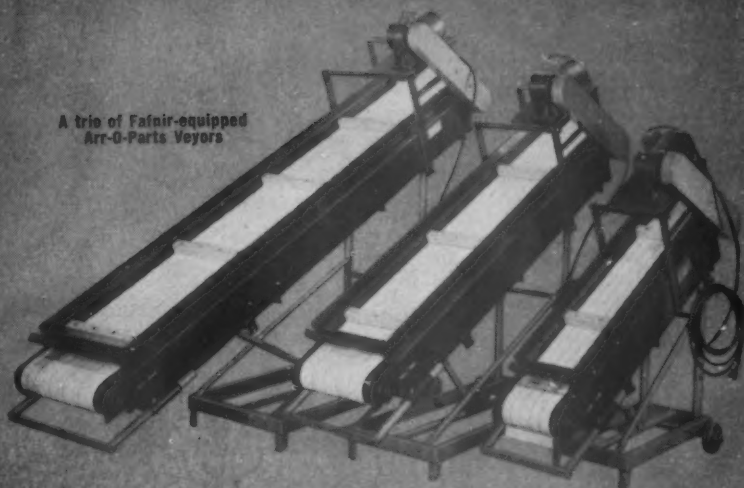
A special grade of vulcanized fiber, incorporating an oil-resistant synthetic rubber sizing, is announced by National Vulcanized Fibre Co., 1055 Beech St., Wilmington, Del. It combines a number of the desirable properties of both rubber and vulcanized fiber to give it an expanded field of applications. In addition to known uses for gasketing, the material is expected to be suitable as a packing and facing ma-

(Please turn to page 158)

For More Information Circle No. 237  
← on Inquiry Card—Page 17



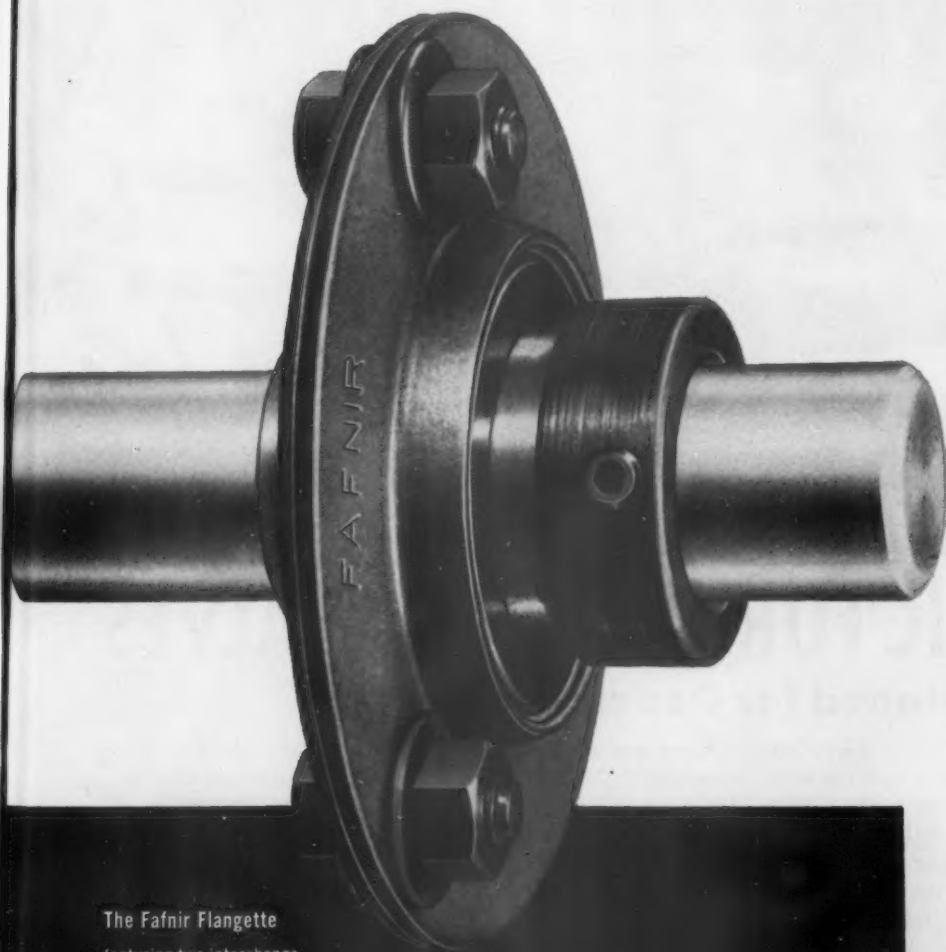
A trio of Fafnir-equipped  
Arr-O-Parts Veyors



**Whenever  
materials  
handling  
equipment  
is improved . . .**

*chances are*

**Fafnir has a bearing on it**



The Fafnir Flangette

—featuring two interchangeable pressed steel flanges; a precision ball bearing and a choice of two types of seals, Mechani-Seals or Plya-Seals. The bearing has the famous Fafnir eccentric cam-type collar, making it the easiest of all to install.

When the entire Arrow Line of Powered Conveyors was redesigned, Arrow engineers utilized the advantages of the Fafnir Flangette to improve belt-tracking and streamline the over-all appearance of each piece of equipment. What's more, by using this economy unit, they were able to keep designs simple, costs down.

Improvements in materials handling equipment resulting from the use of Fafnir Flangettes are not limited to new equipment. They have been made on old equipment too — with equally successful results.

If you are interested in ways to improve materials handling equipment, consult your authorized Fafnir distributor. Very likely, he can cite examples locally where Flangettes have been used on materials handling equipment. Authorized Fafnir distributors are selected for their all-around knowledge of bearings and bearing applications as well as their facilities for stocking and supplying the types and sizes of bearings in popular demand throughout their territory. The Fafnir Bearing Company, New Britain, Conn.

MOST COMPLETE LINE IN AMERICA



**FAFNIR**

**BALL BEARINGS**



**ACCO**  
products

Like all R-P&C Valves—  
**R-P&C ELECTRIC FURNACE IRON VALVES**  
are "Designed for Dependability"

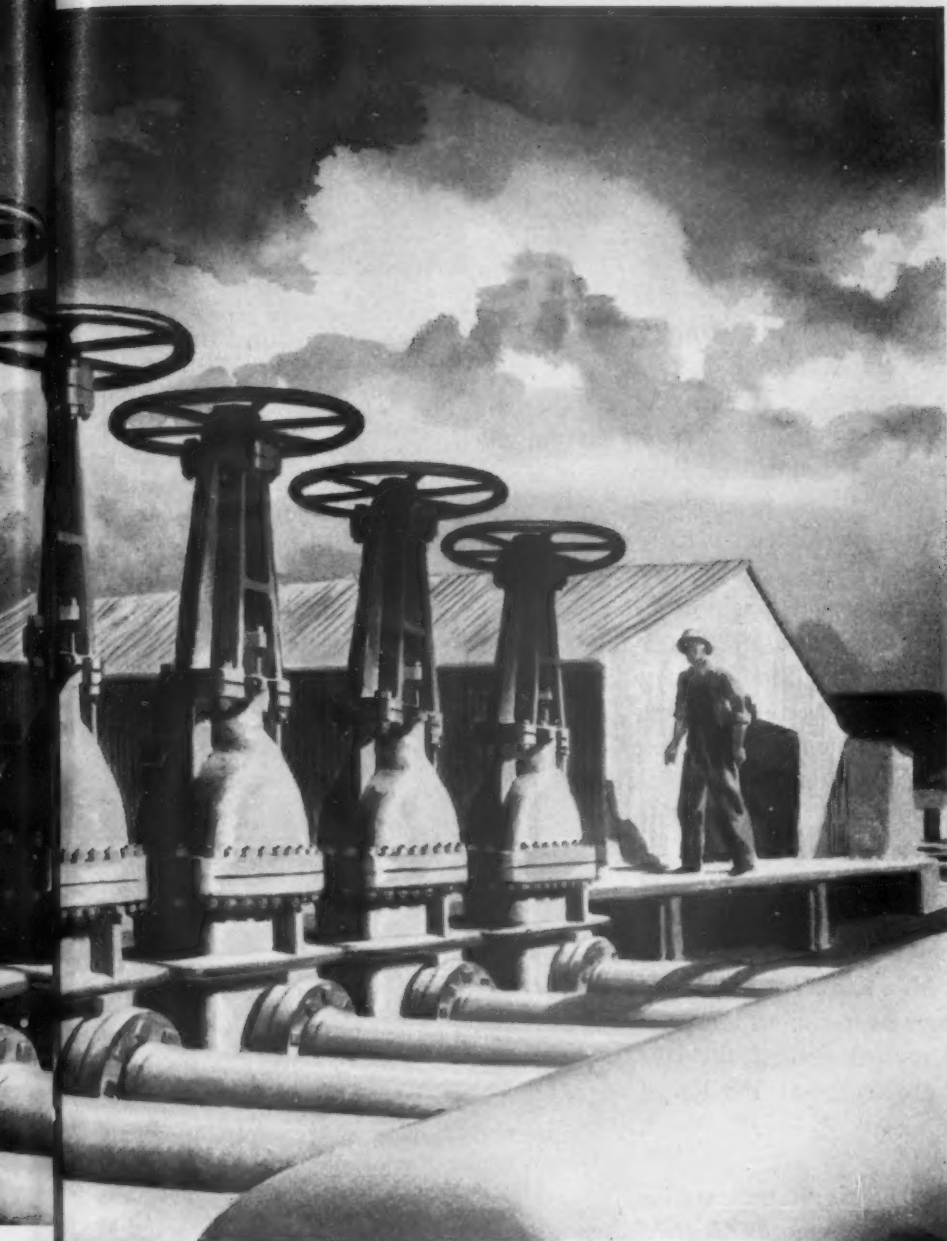
• All cast-iron parts of R-P&C valves are made from electric furnace iron. This better method of melting and refining iron, for which you pay no premium, gives you better valves—longer-lasting, more dependable.

Electric furnace iron is a low-sulphur, low-phosphorus iron of exceptionally fine, homogeneous grain structure and balanced chemical composition. Melted and refined in the electric furnace under close metallurgical supervision, electric iron has a tough, dense body structure with fine graphite flakes evenly distributed. This gives R-P&C electric iron the characteristics of high corrosion resistance, high tensile and transverse strength.

Write for Bulletin DH-18A, "ELECTRIC IRON VALVES." It gives helpful information on valve designs and specifications, also technical data

The **complete R-P&C line** embraces gate, globe, angle, check and pressure-seal valves in a full range of sizes and pressure classes, and in all standard materials. It includes such specialties as bar-stock valves (pressures to 10,000 psi), asbestos-packed cocks and cast-steel fittings.

**Quality Control** marks each operation in producing R-P&C Valves and Fittings. Castings are produced under latest metallurgical controls . . . dimensional accuracy of each valve part is check-gauged . . . hydrostatic and other tests on every valve establish the high performance you can confidently expect.



## ACCO BETTER VALUES —Key to Better Business

The better values you get *when you buy* from ACCO Divisions can be passed on, through your own products, *when you sell*.

**AMERICAN CHAIN DIVISION**  
Weed Tire Chains • Welded and Weldless Chain  
Acco Registered Sling Chains

**AMERICAN CABLE DIVISION**  
Tru-Lay Preformed Wire Rope, Tru-Loc Assemblies

**AUTOMOTIVE and AIRCRAFT DIVISION**  
Aircraft Cable, Controls, Fittings  
Tru-Stop Brakes for trucks and buses

**ACCO CASTING DIVISION**  
Electric Steel and Malleable Iron Castings

**CAMPBELL MACHINE DIVISION**  
Wet Abrasive Cutting Machines • Nibbling Machines

**FORD CHAIN BLOCK DIVISION**  
Chain Blocks • Electric Hoists, Trolleys

**HAZARD WIRE ROPE DIVISION**  
Lay-Set Preformed Wire Rope  
Acco Registered Wire Rope Slings

**HELICOID GAGE DIVISION**  
Pressure, Vacuum or Compound Gages

**MANLEY DIVISION**  
Automotive Equipment for garages and service stations

**OWEN SILENT SPRING DIVISION**  
Owen Springs and Units for mattresses and furniture

**PAGE STEEL and WIRE DIVISION**  
Welding Wire, Shaped Wire, Manufacturers' Wire,  
Chain Link Fence

**PENNSYLVANIA LAWN MOWER DIV.**  
Power and Hand Lawn Mowers

**R-P & C VALVE DIVISION**  
Bronze, Iron & Cast Steel Valves • Steel Fittings

**WILSON MECHANICAL INSTRUMENT DIVISION**  
"Rockwell" Hardness Testers

**WRIGHT HOIST DIVISION**  
Wright Chain Hoists, Electric Hoists, Cranes

**THE ALLISON COMPANY**  
Rubber and Resinoid Bonded Abrasive Wheels

**THE BRISTOL COMPANY**  
Automatic Control, Recording and Telemetering  
Instruments, Aircraft Controls, Socket Screws

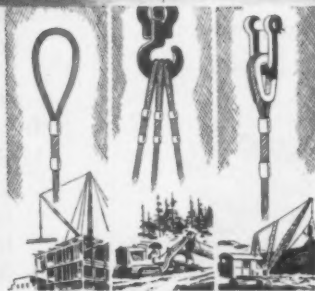
**THE MARYLAND BOLT and NUT CO.**  
Bolts and Nuts • Lag Screws and Forgings

IN CANADA: DOMINION CHAIN COMPANY, LIMITED  
IN ENGLAND: BRITISH WIRE PRODUCTS, LIMITED  
THE PARSONS CHAIN COMPANY, LIMITED



**AMERICAN CHAIN**

American Chain makes welded and weldless chain of all types and sizes for countless industrial, transportation, farm and home uses.



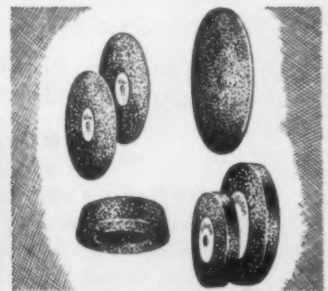
**WIRE ROPE ASSEMBLIES**

Used as boom cables, logging chokers, registered slings, etc. Assemblies have safe DUALOC endings which develop full rope strength.



**MANLEY WRECKING CRANES**

Manley Wreckers, in seven models (3 to 8-ton capacity), are practical and profitable equipment for towing and other garage services.



**ALLISON ABRASIVE WHEELS**

Cutting wheels for all types of abrasive cutting machines; also, resinoid snagging wheels for portable grinders and masonry cutting blades.

For Information on any ACCO product address Market Development Department,  
American Chain & Cable Company, Inc., 929 Connecticut Avenue, Bridgeport, Connecticut



**American Chain & Cable Company, Inc.**

SALES OFFICES IN: Atlanta, Bridgeport, Conn., Boston, Chicago, Denver, Detroit, Exeter, Pa., Houston, Los Angeles, Monessen, Pa., New York, Philadelphia, Pittsburgh, Portland, Ore., Reading, Pa., San Francisco, Wichita, Kans., Wilkes-Barre, Pa., York, Pa.





# Mistakes can be costly...

...especially when it comes to selecting the proper detergent for a cleaning operation. Cleaners are so varied, so complex, that the wrong choice may often prove costly, not only in time, but in materials. For instance, some cleaners are excellent for removing oil and grease from steel, but if used on aluminum the very same cleaners might cause a harmful etching effect. Even on such a simple job as cleaning painted walls, the wrong detergent might damage or eventually destroy the painted surface!

**Because there are** so many surfaces...so many soils to be removed...expert analysis and careful selection are most essential when safe and effective results are desired. Combine these goals with economy, and you have three good reasons why your Oakite Technical Service Representative is the man to contact when you're faced with a tough cleaning problem.

**When you call** in your Oakite Representative, he has at his disposal not only a vast personal store of practical experience and "know-how", but also the consultation services of an extensive cleaning laboratory manned by highly skilled chemists and cleaning engineers. Your Oakite Man has testing and control equipment, special plans and diagrams, technical data and servicing information—all directed toward finding the best possible solution to your cleaning problems—at the lowest possible cost to you.

**Why not contact** your Oakite Technical Service Representative today? Let him demonstrate why more and more industrial organizations are relying on Oakite to pave the way toward bigger savings...better results...in every imaginable industrial cleaning field.

\* \* \*

Looking for more ways to save money? Here's an up-to-date guide that thoroughly covers practically every phase of metal cleaning—from treating raw stock to rust stripping. This 44-page handbook is fast becoming a standard reference in the industrial cleaning field, and it's yours FREE. Call your Oakite Technical Service Representative today, or write Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



SPECIALIZED INDUSTRIAL CLEANING  
**OAKITE**  
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Circle No. 240 on Inquiry Card—Page 17

new  
products

(Continued from page 154)  
terial and as a substitution for rubber coated paper. With a friction coefficient 30% to 50% higher than standard vulcanized fiber and improved chemical resistance, it should be useful where latter properties are required.

Circle No. 49 on Inquiry Card—Page 17

## Safety Eyewear Frame



A rugged new safety eyewear frame for use by men or women workers has been developed by Bausch & Lomb Optical Co., Rochester, N.Y.

Known as the "Titan", it is the first combination metal-and-plastic industrial safety frame. Safety features include:

1. A frame of non-inflammable acetate butyrate, extra tough to withstand breakage, and fully cured to hold its shape.
2. A metal bridge, plated to resist corrosion, and held to the frame with four rivets for maximum strength.
3. Adjustable nose pads which are an integral part of the bridge. Rigid pads are also available.

The new frame also features safety-cross plaques on the front temple corners which identifies them instantly as safety glasses with safety lenses.

Circle No. 50 on Inquiry Card—Page 17

First it was *LED-LOK*... now to supplement *Led-Lok* here's a  
brand new locking fastener that...

# VIBRATION WON'T LOOSEN!



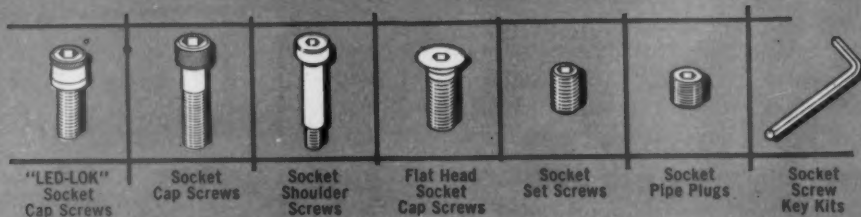
*Blue Devil*  
**SAF-LOK**

## SOCKET SCREWS

Available in Socket Cap Screws • Shoulder Screws • Flat Head Socket Screws

BLUE-DEVIL SAF-LOK SOCKET SCREWS will never vibrate or shake loose when drawn up tight. They make an absolute seal against oil, water, gas and air... form an effective locking device for use in oversize counterbores. The SAF-LOK Insert is bronze, not affected by heat and safe for use with food equipment.

Wide range of SAF-LOK styles and sizes.



*Socket Screws Exclusively!*

## SAFETY SOCKET SCREW COMPANY

6502 North Avondale Avenue • Chicago 31, Illinois

WRITE TODAY for sample SAF-LOK Socket Screws. No obligation!

SOLD ONLY THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS

HOW SAF-LOK SCREWS WORK (actual cutaway photo). SAF-LOK Screw is pre-assembled. After drawing hand-tight, the wrench is used, causing the expansion insert to spread and keep the screw permanently tight. Insert is bronze, will never score the screw cavity.

# BAKER "FG"

## — a new concept in gas truck construction —

# "BALANCED DESIGN"

Here's how the Baker FG gas fork truck —  
"first in its class" — was conceived:

**First:** Exact requirements for a specific truck in the FG line were thoroughly analyzed. Then our engineers, working with a top manufacturer of heavy-duty industrial gas engines, chose the power plant specifically to meet these requirements. Even internal parts of the engine were balanced. For example, our specifications call for pistons balanced to  $\pm 2$  grams instead of the conventional  $\pm 2$  ounces.

**Next:** Transmission was selected to match the power plant and geared to provide required speeds and acceleration. In conjunction with the largest builder of axles in the country, the drive axle was developed to match power plant and transmission.

Lifting mechanism was selected to meet requirements and to be coordinated with power train and other components. Mast was engineered for the maximum safe lift, within the stability ratio of the frame which was designed for exceptionally low center of gravity. The standard Baker wide-angle steer, rubber mounted, trailing axle was modified to match the other elements.

**Result:** 100% Balanced Design  
—another Baker "First".

Baker "FG" gas fork trucks are available with 3,000, 4,000, 5,000 and 6,000 pound capacities. Specific bulletins can be obtained by writing The Baker-Raulang Company, 1253 West 80th Street, Cleveland 2, Ohio.

A Subsidiary of Otis Elevator Co.

# Baker®

handling equipment

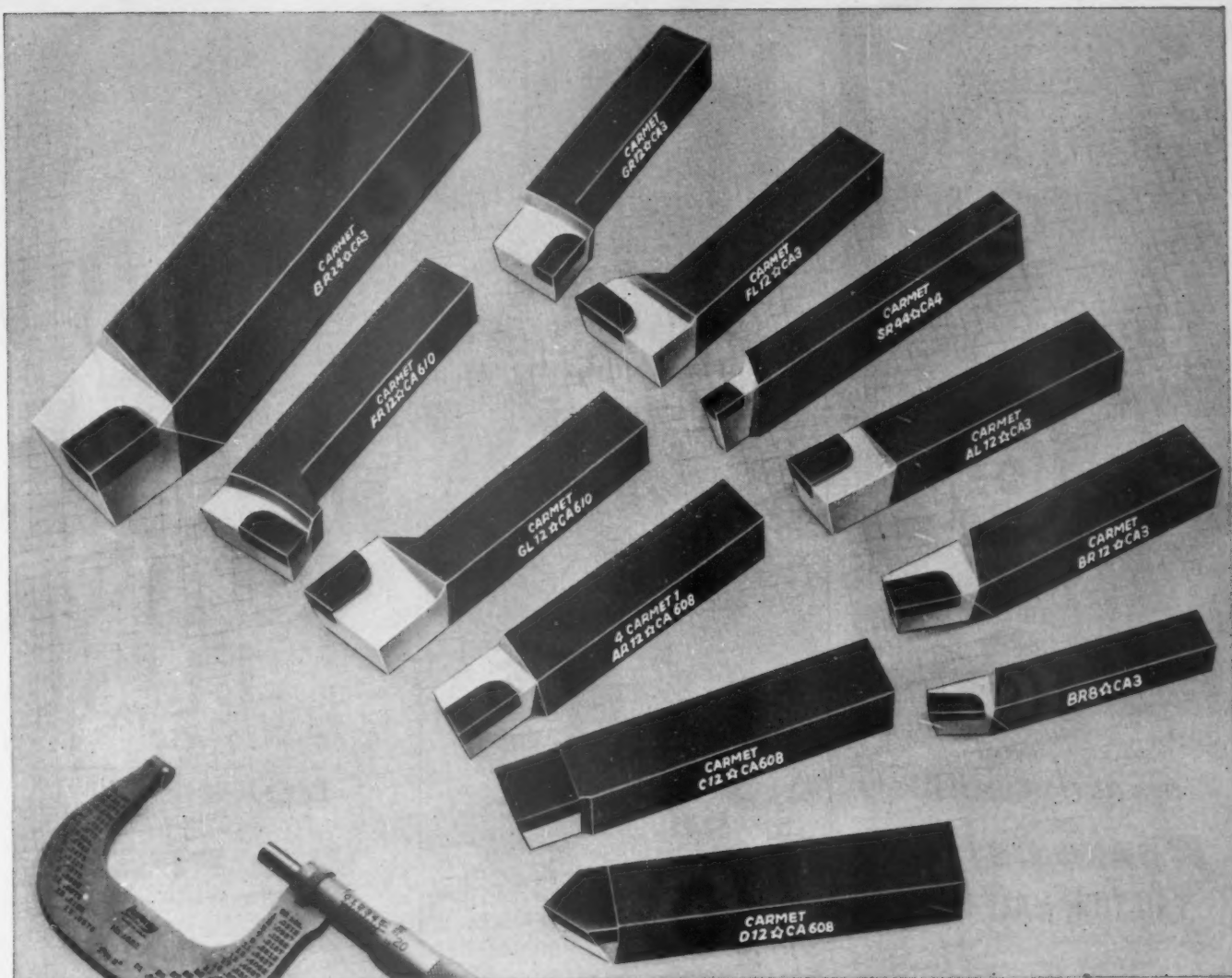


## 8 REASONS WHY THE BAKER FG FORK TRUCK IS FIRST IN ITS CLASS...

- 1. LOWER INITIAL COST**  
Costs considerably less than other trucks in its class.
- 2. LONGER WARRANTY PERIOD**  
Baker quality permits full 6 months' warranty.
- 3. HIGHER LIFT**  
Mast design allows higher standard lift than ordinary trucks.
- 4. LOWER MAINTENANCE COSTS**  
Designed for easier and less frequent servicing.
- 5. MORE MANEUVERABLE**  
Short turning radius cuts aisle width, adds floor space.
- 6. EASIER TO OPERATE**  
Greater visibility... easy-to-work controls.
- 7. GREATER STABILITY**  
Lower center of gravity... higher "stability factor" ratio.
- 8. BETTER BRAKING**  
Full floating, self-equalizing, self-energizing brakes.

5G1





Handle any Cutting Job • • • Cut your Cutting Costs—with

**WHAT OTHER JOBS HAVE YOU FOR CARMET TO DO?**

We specialize in precision preforming of Carmet carbide metals to *any* shape for special wear-resistance needs, such as dies, gage blanks, etc. Let us quote on *your* requirements.

**WRITE FOR YOUR COPIES OF THESE HELPFUL BOOKLETS**



**CARMET CATALOG**

36 pages; grades, tool styles, sizes, etc.

**METHODS MANUAL**

20 pages on speeds, feeds, cuts, etc.

**ADDRESS DEPT. P-74**

# CARMET<sup>®</sup>

The Allegheny Ludlum line of Carmet Carbide Tools is *complete*—every style, size and grade you may need for any cutting job in the shop. If you make your own tools, a full line of blanks is available, too—as well as all necessary grades of AL Tool Steels for back-up materials. Extensive stocks of Carmet standard tools and blanks are carried in Distributors' warehouses coast to coast, and special tools are available to order. • Just remember, for best performance on any application, *use Carmet! Allegheny Ludlum Steel Corporation, Carmet Division, Wanda and Jarvis Aves., Detroit 20, Michigan.*

For ALL your CARBIDE needs, call  
**Allegheny Ludlum**



*you can buy*  
**BETTER BRAKE  
PERFORMANCE!**



*amazing NEW*  
**WORLD BESTOS**  
**FRICITION MATERIALS**

*stop brake fade and glaze . . . assure  
constant friction and longer life of  
trouble-free service.*

Brake fade, glaze, short lining life and excessive wear mean costly brake maintenance and production losses that affect the service record of your product.

World Bestos, specializing for more than 30 years in the manufacture of friction materials, supplies blocks, linings and segments engineered to solve your brake problems . . . to give your brakes a longer life of dependable, trouble-free service.

Proven friction materials for brakes on cranes, drilling rigs, hoists, drag lines, large forming presses, elevators or any type of industrial application. Also linings for automatic transmissions, torque converters and automatic clutches.

For prices and delivery information send prints or specifications to **WORLD BESTOS**, Industrial Products Section, New Castle, Ind. Engineering and development service is available. Write for free folder.

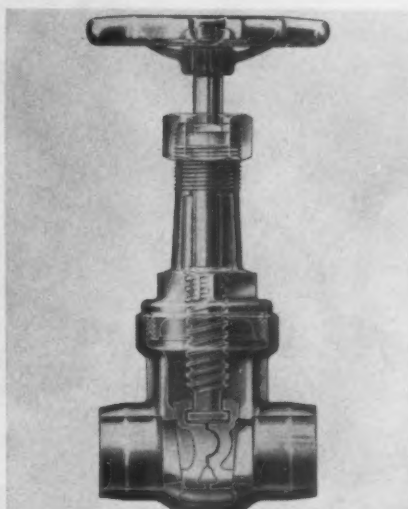
**WORLD BESTOS**  
NEW CASTLE, INDIANA

DIVISION OF THE  
**Firestone**  
TIRE & RUBBER CO.

For More Information Circle No. 244  
on Inquiry Card—Page 17

**new  
products**

**Solder End Valves for  
Varied Applications**

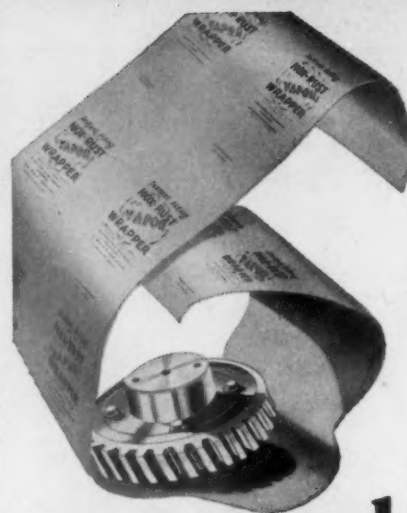


A complete new line of five bronze solder-end valves has been announced by the Lunkenheimer Co. It includes three gate valves—rising stem with double-wedge disc, rising stem with solid-wedge disc, and non-rising stem with single-wedge disc. All three are rated at 125 lbs. steam pressure and 200 lbs. water, oil, or gas. A bronze swing check valve with renewable disc and side plugs carries the same pressure ratings. The line is completed by a non-metallic-disc globe valve, rated at 150 lbs. steam and 300 lbs. water, oil, and gas.

These valves are designed with plain ends for use with types K, L, and M copper tubing. Secure connections are easily made by a simple soldering operation, and the installation assures smooth full flow and compact assembly. The valves are recommended for use on plumbing, heating, and air conditioning lines; low-pressure steam service; underground water lines, etc.

A bulletin with full details is available from the Lunkenheimer Company, P. O. Box 360, Cincinnati 14, Ohio.

Circle No. 51 on Inquiry Card—Page 17



**metal  
can't  
rust**

*in easy-to-use*

**NOX-RUST  
VAPOR  
WRAPPER\***  
\*PATENTED

*Rust-proof metal parts  
at savings up to 50% with  
chemically active Vapor  
Wrapper. Protective,  
instant acting, vapors enable  
you to ship any size product  
factory fresh, ready for use.*



**SMALL**  
Nox-Rust Vapor Wrapper provides positive protection for precision parts or instruments.



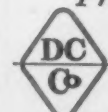
**OR LARGE**  
Low-cost, convenient, clean Vapor Wrapper protects huge machines while in storage or in transit.



**NEW  
HEAT SEALABLE  
Vapor Wrapper**  
Suitable for automatic or semi-automatic rust-proof packaging of metal parts.

Write on your letterhead to  
Daubert Chemical Co.  
for information, Dept. C-71

*Protective Packaging Div.*



**Daubert Chemical Co.**  
formerly NOX-RUST CHEMICAL CORP.  
333 N. Michigan Ave.  
Chicago 1, Illinois

Mfrs. of: RUST PREVENTIVES, VCI PAPERS,  
ADHESIVES, AUTO UNDERCOATINGS

For More Information Circle No. 245  
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For More Information Circle No. 246  
on Inquiry Card—Page 17→



## YOUR WICKWIRE ROPE DISTRIBUTOR SUPPLIES THE ANSWERS TO WIRE ROPE PROBLEMS

One of the best ways to find out "what goes" is to be right on the spot. That's why a Wickwire distributor is a wire rope expert—he practically lives with the industries he supplies with wire rope. He knows his customers' specialized problems from first-hand experience, and is able to give competent practical advice on the best construction—6x19, 6x37, 8x19, etc.—for them to use. And he delivers the type, size and length of wire rope they need directly from his warehouse stocks. They save time . . . storage space . . . paper work.

Your Wickwire Rope distributor is a good man to know. He's quality people handling quality products. Buy your wire rope and wire rope slings from him. You'll find that the many valuable services he offers far outweigh any apparent price advantage you might gain by buying direct.



A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION



# Joliet washers



world's  
foremost  
producer  
of  
flat  
washers

**JOLIET WROUGHT WASHER CO. • JOLIET, ILLINOIS**  
For More Information Circle No. 247 on Inquiry Card—Page 17

new  
products

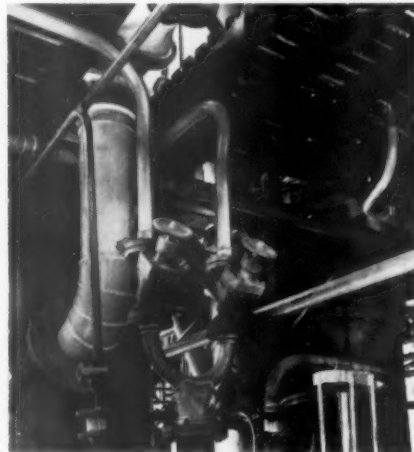
## Grinding Fluid Also Prevents Rust



A grinding compound, developed by Cincinnati Milling Machine Co., Milling Products Div., Cincinnati 9, Ohio, is a water-soluble, transparent concentrate, that is claimed to give exceptional rust control at dilutions between 1:100 and 1:200. Though used primarily as a transparent grinding fluid, the compound can also be used to advantage when machining cast iron.

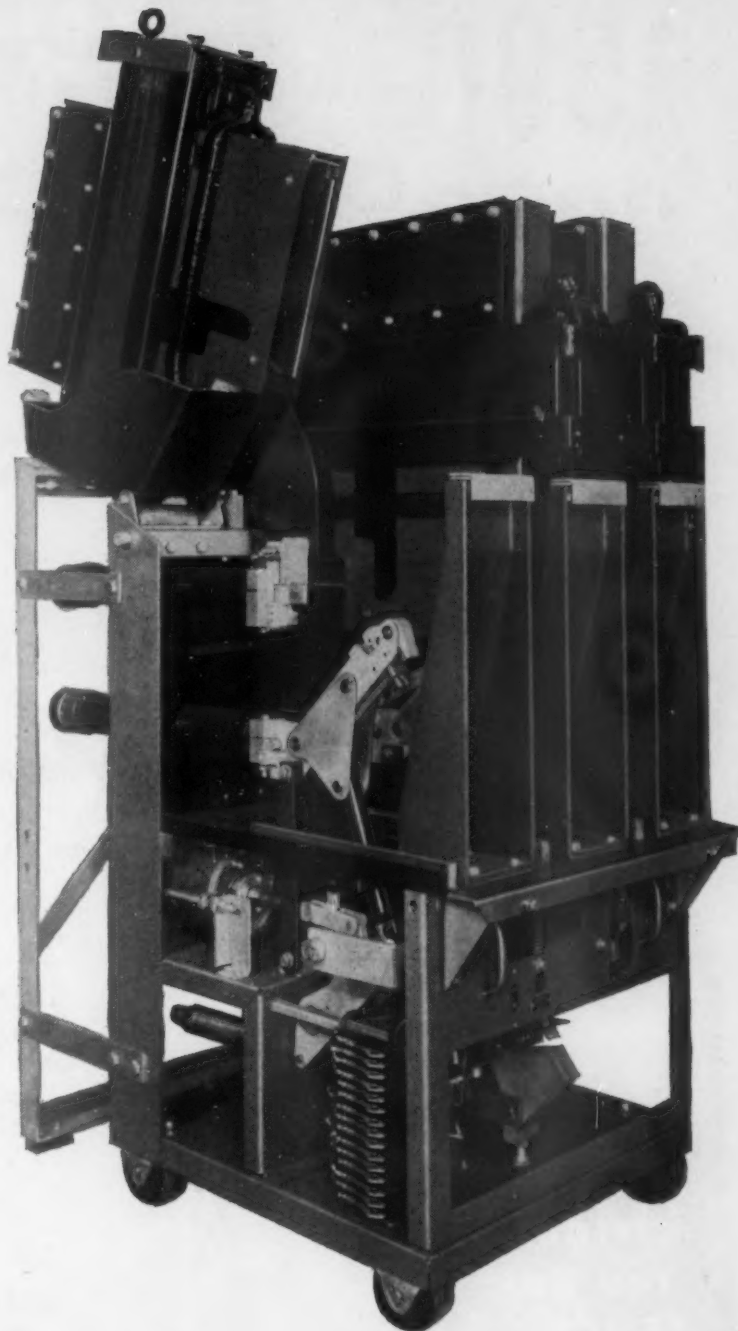
Circle No. 52 on Inquiry Card—Page 17

## Steel Company to Market Plastic Pipe



Joseph T. Ryerson & Son, Inc., which operates 16 steel service plants in the United States, will market a new type of plastic pipe to be sold under the trade name

(Please turn to page 165)



## SEE VALUE HERE YOU'LL SEE NOWHERE ELSE

Operating engineers in the electrical industry often say you can see the higher quality in I-T-E switchgear even when you stand 'way back.

Of course, they're only partly right. You can easily see the practical component arrangement, the all-welded steel construction with compartments designed to retain shape even when lifted as a unit, and the clean, neat appearance. These are standard on all I-T-E switchgear.

But we want you to look closer—see even more. For example, in Metal-Clad Switchgear: the easy-to-service horizontal drawout design; the tilting arc chutes; the extra-heavy insulation. There's quality in every detail—quality that means dollars' more value for your switchgear investment and years' longer troublefree service.

Why not phone the I-T-E office nearest you. Or write for bulletin 7004 giving a complete description of 5, 7.5 and 15 kv switchgear. I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Phila. 30, Pa.



**I-T-E CIRCUIT BREAKER COMPANY • Switchgear Division**

For More Information Circle No. 248 on Inquiry Card—Page 17

1500°  
IN 5 MINUTES  
2300°  
IN 30 MINUTES

*johnson*  
NUMBER 120 HI-SPEED FURNACE

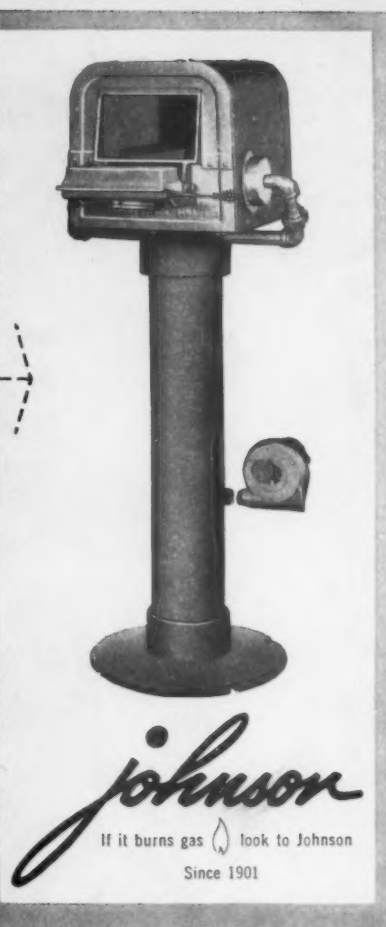
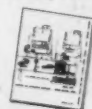
That's the kind of quick heating action you get with this compact, powerful furnace. It's economical to operate, too. Fast heat-up saves time and gas. High-temperature insulated firebox, 5" by 7 3/4" by 13 1/2", gives even hardening of high speed and carbon steel dies, tools and small parts. Temperature easily regulated. G.E. motor and Johnson Blower included. 120,000 BTUs per hour.

Pedestal style, F.O.B. Factory....\$167.00  
No. 120 also available in bench style.

Write today for free Johnson Catalog

Johnson Gas Appliance Company

603 E Avenue NW, Cedar Rapids, Iowa



*johnson*  
If it burns gas look to Johnson  
Since 1901

For More Information Circle No. 249 on Inquiry Card—Page 17

**BEFORE  
You Buy  
FENCE...**

**Get the Facts on  
CONTINENTAL**

**The Only—  
Chain Link Fence  
made of KONIK STEEL**



**CONTINENTAL**  
STEEL CORPORATION • KOKOMO, INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, shapes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special wire. ALSO Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

Konik is a special alloy steel that gives Continental Chain Link Fence increased rust resistance for longer life and lower upkeep costs. Its greater tensile strength (over 85,000 lbs. per sq. inch) withstands abusive shocks and stresses, extremes of temperature, without sagging or losing alignment. Bright-galvanizing after weaving and 13 other features mean extra protection and fine appearance. Complete engineering and construction service.

**Send for FREE COPY  
of PLANNED PROTECTION**

Gentlemen: Please send us without obligation a copy of "Planned Protection."

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**PLANNED PROTECTION**



CONTINENTAL CHAIN LINK FENCE

For More Information Circle No. 250 on Inquiry Card—Page 17

new  
products

(Continued from page 164)

of Ryertex—Omicron PVC pipe. This is a rigid non-plasticized polyvinyl chloride pipe also suitable for use as a structural material.

Rigid polyvinyl chloride plastics, known to the trade as PVC, are relatively new in this country although they have been successfully used in Europe for about 20 years. The type to be marketed by Ryerson has no additives or fillers, which insures maximum resistance to attack by varicous acids, alkalies, salt solutions, alcohols and other chemicals. It will not support combustion, and this characteristic alone makes it particularly desirable for many installations in which the use of plastic materials has heretofore been barred or restricted. Pipe fittings and valves of the same material will also be available. The data may be secured on request to the company at Box 8000-A, Chicago 80, Ill.

Circle No. 53 on Inquiry Card—Page 17

### Aluminum Putty Fills Holes In Castings

The putty, identical in appearance to aluminum after hardening, trade named Devcon F, consists of approximately 80% aluminum and 20% plastic. It is used in machine shops, foundries, etc., for filling very large and small holes in aluminum and steel castings. It covers holes which have been drilled incorrectly and builds up worn sections. The machined surface has an appearance almost identical to aluminum or polished steel. A large mass can be applied to a vertical surface and will not run or sag. No special skill is required. It has an excellent adherence to aluminum and steel, and also to bronze, brass and cast iron. It is a product of Chemical Development Corp., Danvers, Mass.

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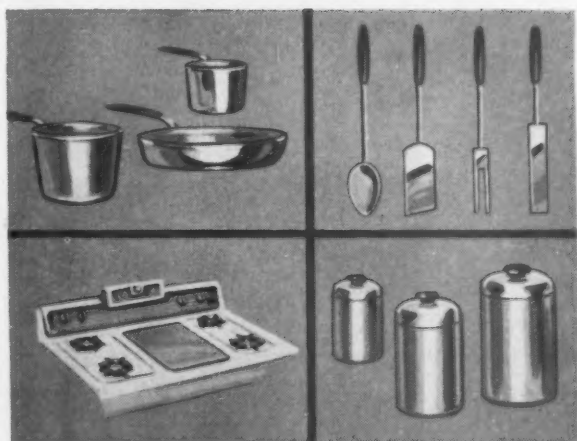


modern design specifies stainless steel



# McLouth STAINLESS Steel

for the home



The lady agrees with the architect that her modern, cheerful, Stainless Steel kitchen will be the most beautiful room in the new house. Stainless Steel is the bright, long lasting metal that will not tarnish, is easy to clean and a joy to live with.

For the product you make today and the product you plan for tomorrow specify McLouth high quality sheet and strip Stainless Steel.



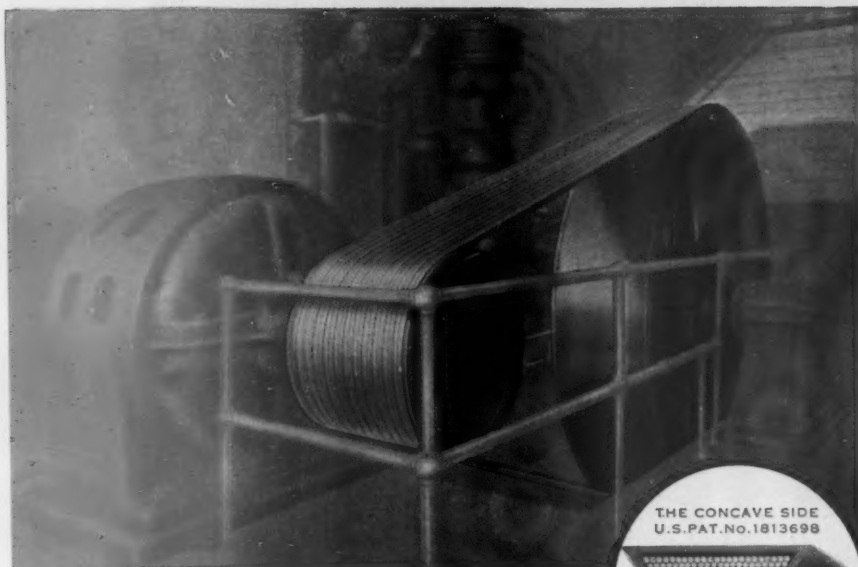
**McLOUTH STEEL CORPORATION**  
*Detroit, Michigan*

MANUFACTURERS OF STAINLESS AND CARBON STEELS

For More Information Circle No. 251 on Inquiry Card—Page 17

FEBRUARY, 1956

167



## Why a V-Belt with **CONCAVE SIDES** wears longer

THE CONCAVE SIDE  
U.S. PAT. NO. 1813698



Fig. 1



Fig. 1-A

It is easy to demonstrate to yourself why the concave sides (Fig. 1) of the Gates belt greatly lengthen belt life.

Simply bend a Gates belt and feel the sides. Notice how these precisely engineered concave sides *fill out* on the bend and *become straight*. Thus a Gates belt grips the sheave groove evenly (Fig. 1-A) and wear is distributed uniformly across each side of the belt. That means longer belt life; lower costs.

Make the same test with a straight-sided belt (Fig. 2) and see what happens. The sides bulge out on the bend (Fig. 2-A) concentrating the wear at points shown by arrows.

To assure longer wear and keep belt costs down, specify the V-belt with concave sides—Gates Vulco Rope . . . readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts*.



Fig. 2



Fig. 2-A

*There are Gates Engineering Offices and Distributor Stocks in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.*

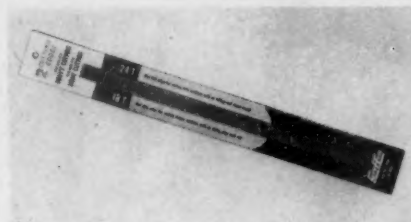
TPA 68

# Gates **VULCO** **ROPE** Drives

For More Information Circle No. 252 on Inquiry Card—Page 17

new  
products

## Hack Saw Blade Handles All Metal Thicknesses



G. W. Griffin Co., Franklin, N.H., has on the market a double edge hack saw blade that handles all thicknesses of metal cutting. There are 18 teeth on one edge for general heavy cutting of such materials as bolts, pipe and rod. On the other edge are 24 teeth for cutting thin sections, for example, sheet metal, light tubing, thin wall conduit, etc. These double edge blades are individually carded and cutting edges are identified.

Circle No. 55 on Inquiry Card—Page 17

## Live Storage Keeps Stock Active



First-in, first-out live storage of boxed or palletized loads, tote pans, etc., can be gained with a new live storage rack, made of mass-produced A-F Live Rails. The new racks use approximately half the number of rails used in

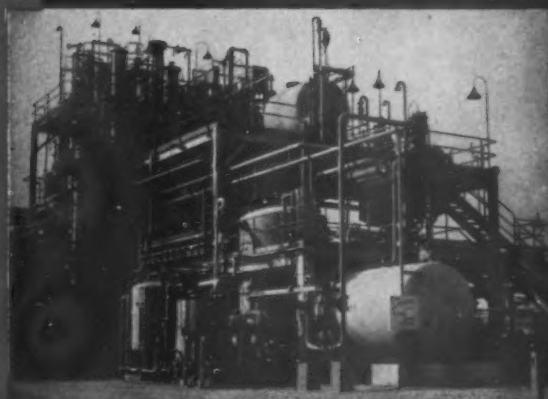
(Please turn to page 172)

# DROP FORGED STEEL valves, fittings and flanges by **Vogt**

**USED  
and TRUSTED  
by the  
NATIONS KEY  
INDUSTRIES**



**REFINERIES**



**CHEMICAL PLANTS**



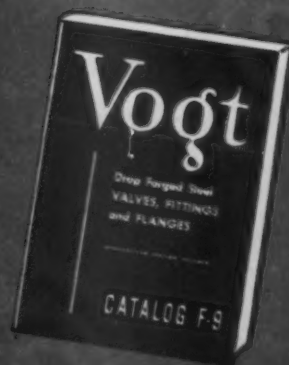
**POWER PLANTS**

There are good reasons behind the trust which America's key industries have placed in Vogt valves, fittings, and flanges for half a century. They know that *drop forged materials* are uniform in structure, fine grained, and free from porosity. They know, too, and appreciate the meticulous care given these products through every stage of forging and machining in Vogt's modern shops, and about the many rigid tests and inspections. And that is why these products enjoy such an impressive record of performance in withstanding the shocks and stresses imposed by high or low pressures and temperatures and in resistance to erosive and corrosive conditions.

Service is another important factor in this confidence because Vogt maintains the world's largest and most complete stock of drop forged steel valves, fittings, and flanges always ready for immediate shipment.

Write for Catalog F-9.  
Consult its 400 pages for  
the complete Vogt line of  
drop forged steel valves,  
fittings, and flanges for oil,  
steam, water, air, gas, and

ADDRESS DEPT. 24-JPM



**HENRY VOGT MACHINE CO., LOUISVILLE, KY.**

BRANCH OFFICES: New York, Philadelphia, Chicago, Cleveland  
St. Louis, Dallas, Charleston, W. Va., San Francisco



# Black & Decker®

# POWER-

---

Service . . . one of 42 Black & Decker factory service branches is located "next door" to you. Staffed by experts to give fast, efficient service, genuine replacement parts.

**We don't buy motors—  
we build them!**

The heart of your electric tool is the motor—completely built by Black & Decker! All the power you need—and then some—because each motor is built for a specific tool and the job it must do! B&D motors always *stand up!*



**SAWS—5 models**



# Electric Tools are BUILT FOR COST-SAVING PERFORMANCE!



POWER-BUILT B&D tools are made for top-flight performance under all operating conditions. Parts are precision-made. Motors are custom-built to supply more than enough power needed for the tool's specific job.

Rugged construction provides years and years of economical service under toughest usage. B&D tools are easy

to handle because they're lightweight, compact and perfectly balanced. Operating fatigue is minimized.

B&D tools save operating costs. Over 150 different B&D tools to choose from. For complete information, see your B&D distributor for a demonstration, or write: THE BLACK & DECKER MFG. Co., Dept. 1702, Towson 4, Maryland.

LOOK IN YELLOW PAGES UNDER "TOOLS-ELECTRIC"



**Black & Decker®**

**PORTABLE ELECTRIC TOOLS**

**DRILLS—32 models**




**SCREW DRIVERS—21 models**



**BENCH GRINDERS—4 models**





**"THIS LUBRICANT  
ENABLED US  
TO INCREASE  
PRODUCTION"**

says—PITTSBURGH TUBE COMPANY

"Our 70,000 pound Draw Bench was designed to operate at a maximum of 80 feet per minute, full load. We decided to increase the drawing speed on lighter tubing to 100 and 104 feet per minute. This overloaded the Speed Reducer; however, causing it to overheat. We tried four different makes of oils without success before trying LUBRIPLATE A.P.G. 90. With LUBRIPLATE, we are able to pull heavier tubing than before at 104 feet per minute without the Reducer overheating."

R. S. Vorous  
Maintenance Engineer

**REGARDLESS OF THE SIZE AND  
TYPE OF YOUR MACHINERY,  
LUBRIPLATE LUBRICANTS  
WILL IMPROVE ITS OPERATION  
AND REDUCE MAINTENANCE**

**LUBRIPLATE LUBRICATION**



**MAKES CARS  
AND TRUCKS  
RUN BETTER  
AND LAST  
LONGER**

LUBRIPLATE H.D.S.  
MOTOR OIL . . . THE OIL  
THAT NEEDS NO  
ADDITIVES

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



For More Information Circle No. 255  
on Inquiry Card—Page 17

## new products

(Continued from page 168)  
other racks, because A-F Live Rails have two rows of wheels, and each rail serves two lanes. According to the manufacturer, assembly is simple, width of lanes can be changed quickly on the job. Length, width and height can be varied to suit. Manufacturer is The Alvey-Ferguson Company, Cincinnati 9, Ohio.

Circle No. 56 on Inquiry Card—Page 17

## Stock Feeder Reloads With No Machine Stop



A stock feeder provides for reloading a multiple spindle screw machine without stopping the machine each time the previously fed stock is used up. It is thus possible for one man to easily operate a number of such machines and greatly reduce labor costs. The feeder includes a pair of rollers which are adapted to engage stock between them to feed the stock to a screw machine spindle which is aligned with the rollers. The rollers are disengaged from the stock before the machine indexes to its next position, so that they will not interfere with the next indexing operation. Whenever any bar stock is used up in a spindle, a new stock may be easily fed to the spindle by introducing the stock between the rollers. Roll-O-Matic Industries, 18533 Weaver, Detroit 28, Mich., produce the feeder.

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COOPER ALLOY

## CORPORATION BRIEFS

• Edited by GEORGE BLACK

### ENGINEERING DATA BOOK

Another section of the new Cooper Alloy catalog being readied by the Valve and Fitting Division is now available. Referred to as "Stainless Steel Engineering Data," this 16 page manual includes a variety of tables and charts of reference value for those who work with stainless steel valves, fittings, pipe, tubing or castings. Your copy is waiting.



### ADVANCED KNOW-HOW #1

The full story behind the Shellcast® stainless steel jet engine support rings being turned out by the Foundry Products Division of Cooper Alloy is told in Advanced Know-How Report #1. The problem, the specifications and the solution are covered in detail with text and photos. Write for your copy.



### PUMPING ETCH ROOM SOLUTIONS

Transferring acids and salt solutions used in the Etch Room of Litho Chemical & Supply Co. caused repeated pump failure and constant shaft seal maintenance. Five years ago a Vanton plastic pump (no stuffing box, no shaft seals) was put into daily service. Customer reports "no maintenance except lubrication." Full story appeared in Chemical Processing (July). Reprint available on request.



### QUIKUPL DATA POPULAR

Since the publication of the May issue of Newscast which featured this patented fitting, the requests for additional data have been pouring in. In case you missed the issue, may we remind you that copies are still available. Full engineering data, case histories and photographs are included, making it possible for you to see for yourself just how this unique stainless steel fitting can cut your installation and operating costs.



**COOPER ALLOY**  
CORPORATION • HILLSIDE, N. J.

For More Information Circle No. 256  
on Inquiry Card—Page 17

PURCHASING



# The Engineer from Continental Screw Co. ...



## ... guarantees you 24-hour service on all 17 types of self-tapping screws

**Having trouble getting deliveries?  
Talk to the Engineer from Continental**

Continental offers you the largest inventory of tapping screws in the country. And this is backed by the most complete line of tapping screws. Only Continental makes all 17 types of thread-forming and thread-cutting screws. It is part of their 2,118,000 screw styles and sizes available for 24-hour delivery.

This vast inventory, combined with Continental's top position in the design and production of special fasteners, guarantees you faster service and a top-quality product.

It will pay you to discuss your needs with Continental. Their design engineers and production specialists offer you the benefits of over 50 years experience and know-how.

### **Only Continental Engineers Are Required To Have This Training**

Each engineer at Continental is required to undergo thorough experience producing ground thread taps and gages, with their exacting screw thread dimensions. This special training is passed on to you—at no extra cost.



*You Can Always Count on Continental*

## **Continental Screw Co.**

Manufacturers of Holtite Fastenings  
New Bedford, Massachusetts, U.S.A.

## "USS GERRARD STEEL STRAPPING and the Model TA Machine



...save us considerable  
time and money,"  
says A. G. Spalding & Bros.,  
Los Angeles, Calif.

"and provide a secure, pilferproof  
package every time."

This famous sporting goods manufacturer has been using USS GERRARD Steel Strapping for over six years to wrap shipments destined for all corners of the earth. They have found the GERRARD TA Machine to be speedy, simple, and easy to operate. And the packages, once tied with GERRARD Round Steel Strapping, remain tightly wrapped, rigid, and snug until they reach their destination.

The Spalding Distributing Branch secures with GERRARD Steel Strapping all packages which weigh 75 pounds or less, and are to be shipped great distances. Formerly, string, cord or twine were used to reinforce the packages—hand-wrapped with several loops. The GERRARD Steel Strapping now in use has proved to be cheaper, 3 to 4 times faster, and tremendously stronger.

If you haven't investigated GERRARD Steel Strapping—Round or Flat—you should. And do it now. If you'd like help with your packaging-tying problem, our engineers would be happy to help you find the safest, most economical solution to it. Get in touch with us.

### HOT OFF THE PRESS! NEW CATALOG...

36 pages of photographs, descriptions, facts and figures on all USS GERRARD Steel Strapping and associated equipment.



GERRARD STEEL STRAPPING DIVISION,  
UNITED STATES STEEL CORPORATION  
General Offices: Chicago, Illinois

— RETURN THIS COUPON —

Gerrard Steel Strapping  
4713 South Richmond Street  
Chicago 32, Illinois



Please send me, free of charge, the new GERRARD Blue Book of Packaging—Catalog No. 2.

Name .....  
Company .....  
Address .....  
City ..... State .....

# USS GERRARD

Round and Flat • STEEL STRAPPING

UNITED STATES STEEL

For More Information Circle No. 258 on Inquiry Card—Page 17

new  
products

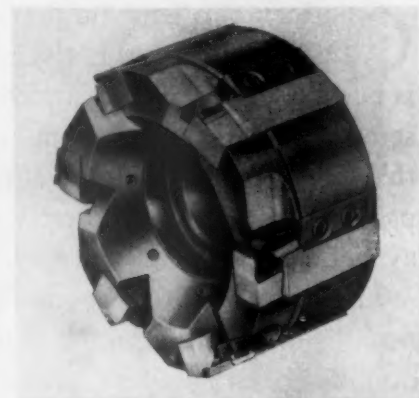
### Light Weight Wheels



A line of new light weight wheels for floor truck and trailer application has been announced by Nutting Truck and Caster Co., 1201 W. Division St., Fairbault, Minn. Of aluminum alloy, approximately 50% lighter than ordinary molded on rubber tired wheels, they meet the demand where light weight and non-spark properties are required. An additional advantage is their demountable rubber tire feature, which permits on-the-job tire replacement thereby eliminating expensive downtime and time-consuming retreading. Available in 4" to 12" diameters in variety of hub lengths and axle sizes. Capacity range—250 to 800 lbs.

Circle No. 58 on Inquiry Card—Page 17

### Lifetime Face Mill Body Eliminates Regrinding



Nelco Tool Co., Inc., Manchester, Conn., has in production a lifetime face mill body that accommodates industry standard holders and "throw away" carbide inserts to eliminate regrinding.

(Please turn to page 176)



**Moisture-resistant.** K&M Apac sheets are used on the ceiling of this toll entrance and custom office inspection enclosure at the Port Huron, Michigan, Blue Water International Bridge. The moisture in the air at the bridge won't harm them.



**Temperature, humidity safeguards.** Walls of K&M Apac sheets give dependable aid to a cigar manufacturer in an important process—where temperature and humidity are accurately controlled.



**All-purpose sheets.** This photo shows K&M Apac sheets being applied on a building where they are used for both outside and inside walls as well as for ceilings.

**You'll be wise to choose**

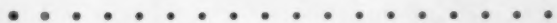
**K & M APAC**

**Asbestos-Cement Sheets**



**Interiors—Exteriors**

**Remarkable economy!**



You'll find a thousand and one uses for these flat asbestos-cement sheets: as an interior and exterior siding, office paneling, plant and office ceilings, machine shop sheathing, stock room sidewalls, basement partitions, linings for elevator casings. Use them almost everywhere, inside and outside.

*Built to last.* K&M Apac sheets are made of two practically indestructible materials, asbestos fiber and portland cement. They won't burn, rot, or corrode. And they never need protective paint.

Look over the illustrations. See a few of the many places where Apac sheets are applied. Then contact your K&M distributor, and ask him to tell you more about low-cost K&M Apac sheets. Informative folders also available on request. Address inquiries to our headquarters in Ambler, Pa.

**KEASBEY & MATTISON**  
COMPANY • AMBLER • PENNSYLVANIA



For More Information Circle No. 259 on Inquiry Card—Page 17





# PLYMOUTH

## Rubber Bands

OUTSTRETCH  
OUTLAST  
ALL OTHERS



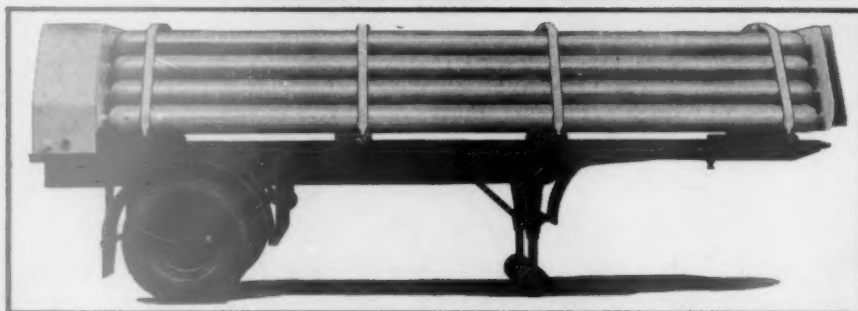
**PROMPT  
DELIVERY**

- Bands for Every Purpose
- Saves Time and Labor in Production
- We'll Make Them for Your Special Needs

NATIONALLY DISTRIBUTED . . . Sold Only Through Recognized Wholesalers  
*All Plymouth Standard Bands Made to Federal Specifications*

**PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.**

For More Information Circle No. 261 on Inquiry Card—Page 17



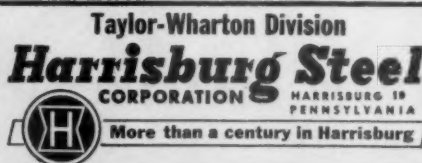
## Is this the answer to your gas transportation and storage problems?

**Taylor-Wharton GAS TRANSPORTS** offer a practical means of transporting and storing large quantities of compressed gases. Oil refineries use them for hydrogen and nitrogen in starting the Reforming process. Chemical, electronics and food processing companies, having their own gas generators, use them for inter-plant distribution of gases and other purposes. They also find them excellent as a flexible means of temporary storage.

Especially effective for the lighter, not easily liquefied gases, such as hydrogen and helium, they are also used for oxygen, nitrogen, boron trifluoride, ethylene, etc. In some cases they are used instead of large permanent storage installations, with less investment and greater flexibility.

The tubes are made to ICC-3A 2400 specifications and completely heat-treated. The trailers are specially constructed for this service in single and double axle models.

Ask us for further information, describing your requirements.



For More Information Circle No. 260 on Inquiry Card—Page 17

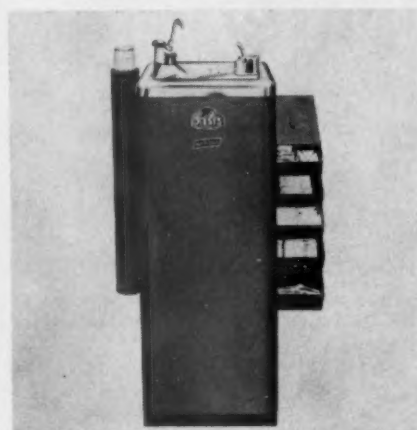
new  
products

(Continued from page 174)

ing completely. With this new cutter, downtime is reduced from hours or days to minutes. The mill body is engineered with built in adjustments to accommodate standard tool bits with disposable carbide blanks. Each blank has six cutting edges which can be changed in seconds.

Circle No. 59 on Inquiry Card—Page 17

## Cup and Beverage Dispensers for Coolers



Ebco Manufacturing Company, 265 Hamilton Rd., Columbus, Ohio, announces color-matched beverage and cup dispensers that are quickly and easily affixed to its new "Hot 'n Cold" water coolers. These handy dispensers hold sizeable quantities of all the necessary ingredients for the coffee-break. The cup dispenser holds seventy-five neatly stacked paper cups in an inverted position for added cleanliness and ease of removal. The self-service beverage dispenser can be obtained in a choice of sizes—either three or five shelves.

Circle No. 60 on Inquiry Card—Page 17

**FOR MORE INFORMATION  
ON PRODUCTS IN  
THIS ISSUE  
USE INQUIRY CARD—PAGE 17**

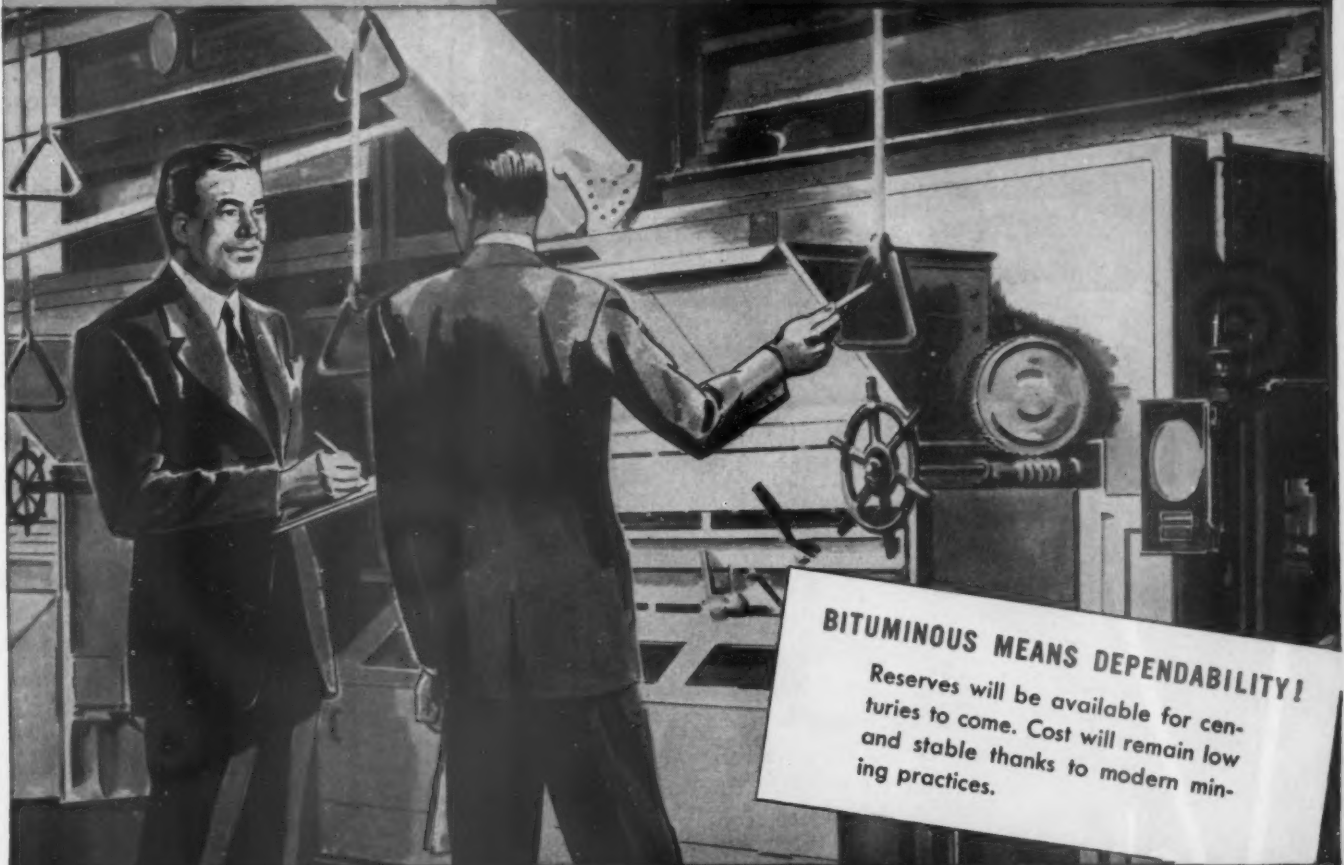
Are you  
now using  
the most  
efficient  
coal for  
your  
purpose?

**LET OUR TECHNICAL SERVICE ADVISE YOU!**

No two plants are alike—design and equipment characteristics make the difference. That's why it's so important to consider kind and size when selecting a coal for your particular burning equipment. The B&O Technical Service is prepared to study your specific problem and help you choose the correct coal. Here's what our service does for you:

- outlines Bituminous coals available for your plant.
- discusses the merits of these coals.
- establishes current and predicts future relative values of these coals.
- determines the best coal for your system.
- suggests the most efficient way to burn this coal.
- supplies case histories of actual savings in fuel costs.

Ask our man! Write:  
COAL TRAFFIC DEPARTMENT  
BALTIMORE & OHIO RAILROAD  
BALTIMORE 1, MARYLAND



**BITUMINOUS MEANS DEPENDABILITY!**

Reserves will be available for centuries to come. Cost will remain low and stable thanks to modern mining practices.



**Baltimore & Ohio Railroad**

*Constantly doing things—better!*

**BITUMINOUS COALS FOR EVERY PURPOSE**

air  
vacuum  
hydraulic



# VALVES

BY VALVAIR

Compare quality

Compare delivery

Compare service

Compare  
and you'll  
buy

# V

alvair

Immediate delivery from stock

Speed King single  
solenoid, pilot-operated  
four-way valve shown.

Complete line—thousands  
of valve combinations from ten  
different control assemblies, five  
body types, five sizes. Solenoid  
and pilot valves built to JIC  
standards. Valvair Corporation,  
454 Morgan Ave., Akron, Ohio.

Representatives in: Baltimore • Birmingham • Boston  
Buffalo • Charleston, W. Va. • Chicago • Cleveland  
Cranford, N. J. • Dayton • Denver • Detroit • Eureka,  
Calif. • Houston • Kansas City, Mo. • Logansport, Ind.  
Louisville • Minneapolis • S. Pasadena • Philadelphia  
Pittsburgh • Portland • St. Louis • Seattle • San Fran-  
cisco • Syracuse • Montreal • Toronto • Vancouver

new  
products

## Carton Printing Machine Cuts Down Inventories



A machine has been developed  
by Pitney-Bowes Inc., Stamford,  
Conn., to automatically feed, im-  
print and power-stack cartons at  
a rated speed of 10,000 per  
minute. The imprinter replaces  
hand-stamping of packing ma-  
terials and hand fixing of labels.  
It also enables users to eliminate  
large and varied inventories of  
cartons and other containers, or-  
dinarily printed in advance. The  
machine can accommodate ma-  
terial sizes from 2½" by 2¼" up  
to 18" by 18" and thicknesses  
from .010" to 3/16". It will im-  
print an area up to 4" by 18"  
in any direction.

Circle No. 61 on Inquiry Card—Page 17

## Split Flange Type Hose Fittings

Aeroquip Corp., Jackson, Mich.,  
has on the market a complete line  
of split flange type hose fittings,  
available in straight, 45° and 90°  
assemblies. Made of steel, the fit-  
tings are designed for use with  
single wire and double wire braid  
hose. The four-bolt split flange  
features ease of positioning in in-  
stallations, and rapid disassembly.  
The fittings conform with all SAE  
specifications and are available  
in all sizes from ½" through 2".  
Circle No. 62 on Inquiry Card—Page 17

For More Information Circle No. 263 on Inquiry Card—Page 17



# For NON-FERROUS SHELL MOLDING ...see PB & B



*Marine hardware part shell-molded of manganese bronze by Philadelphia Bronze & Brass. Note the smooth cast finish and clear definition of markings. Precise coring eliminates machining of interior surface.*



*High conductivity copper parts for circuit breaker assembly, formerly machined from bar stock, are now shell-molded and brazed together—at large savings in total cost.*

Need non-ferrous castings to close tolerances? Shell molding, by Philadelphia Bronze & Brass, can offer you substantial savings. This new foundry process produces smoother surfaces... holds tolerances as close as 0.003" per inch... reduces finish machining requirements... permits intricate coring. On production quantities, its cost often compares with that of sand casting.

By bringing your shell molding problems to PB&B, you profit by these extra values:

**Specialized experience.** For years we have specialized in casting a variety of non-ferrous alloys, including high conductivity copper alloys for elec-

trical parts, and aluminum and manganese bronzes for structural members.

**Complete facilities.** Under a single responsibility are encompassed all activities to produce finished castings to your specifications, including the design and making of shell molding patterns. Casting capacity ranges up to parts 30 pounds in weight and molds up to 15" by 20". The most modern laboratory equipment is used to maintain strict quality control over each step in production.

For a discussion of your specific shell molding application, write today to Philadelphia Bronze & Brass, or to any of the field offices of P. R. Mallory & Co. Inc.

**PHILADELPHIA  
BRONZE & BRASS CORP.**

22nd and Master Streets, Philadelphia 21, Pa.

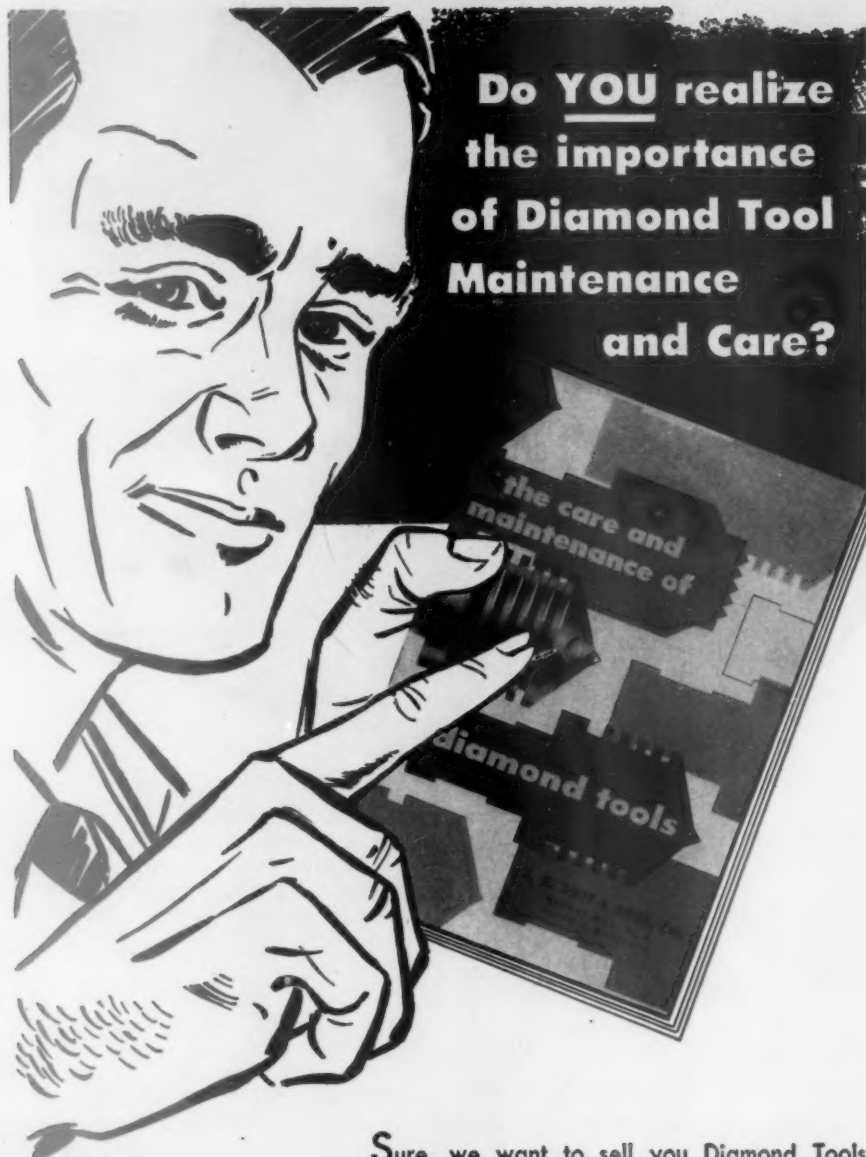
—a subsidiary of

**P. R. MALLORY & CO. INC.**  
**MALLORY**

FEBRUARY, 1956

For More Information Circle No. 264 on Inquiry Card—Page 17

179



**Do YOU realize  
the importance  
of Diamond Tool  
Maintenance  
and Care?**



Stakeool Model



Cluster Model

Sure, we want to sell you Diamond Tools! However, we also feel there is a definite need of knowledge as to how to take care of the Diamond Tools you already own. That's why we have compiled, edited and printed a booklet which will help you with your diamond tool care and maintenance problems. It's yours for the asking. Merely write for your copy of "The Care and Maintenance of Diamond Tools."

And—when you're again ready to replace wornout tools and if you require engineering advice on industrial diamond products, consult J. K. Smit & Sons . . . We've been in this business since 1888.



**J. K. SMIT & SONS, INC.**  
HOME OFFICE AND PLANT  
MURRAY HILL NEW JERSEY

Additional plants in London, Paris, Amsterdam and Toronto, Canada

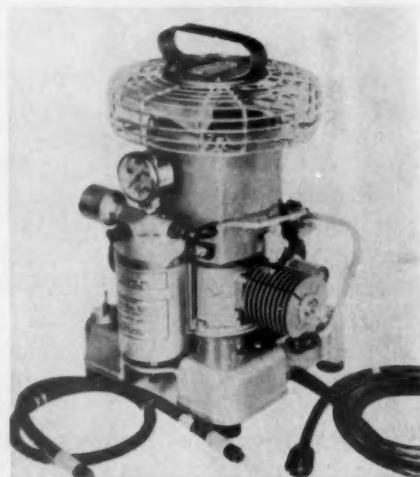
new  
products

### Flux Brazes Chrome And Nickel Alloys

A flux has been developed to meet the need for high temperature brazing of chrome and nickel alloys. Stainless steel assemblies in jet aircraft, automotive and nuclear energy industries are said to be particularly good applications for this flux. It is free-flowing and active in a temperature range of 1400 F to 2000 F, according to the manufacturer, Air Reduction Co., 60 East 42nd St., New York 17, N.Y.

Circle No. 63 on Inquiry Card—Page 17

### Compressor Discharges Air Free of Oil, Moisture



A compressor with a capacity of 1.75 cfm of free air, at a rated discharge rate of 3000 psi has been put on the market by The Cornelius Co., 550—39th Ave., N.E., Minneapolis 21, Minn. The relatively low discharge of 1.75 cfm free air insures that compressed air will be free of contamination with oil and moisture. The unit is suitable for pressurizing actuators, receivers and accumulators. It will also be found useful by processing, service and maintenance departments requiring high pressure air.

Circle No. 64 on Inquiry Card—Page 17

For More Information Circle No. 266 on Inquiry Card—Page 17→



**purchasing furniture for an industry or business?**



Not easy! Especially when items may range from factory seating to hospital beds—reception room pieces to restaurant tables—office chairs to hotel dressers. That's why a quality-service, dependable single source like *Royal Metal Manufacturing Company* may be the perfect solution to your problems. Write for literature, today.

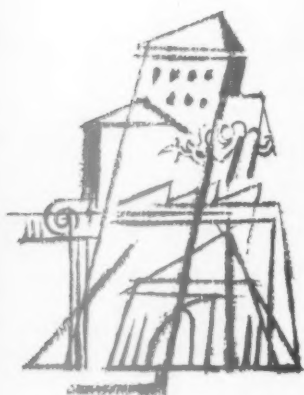
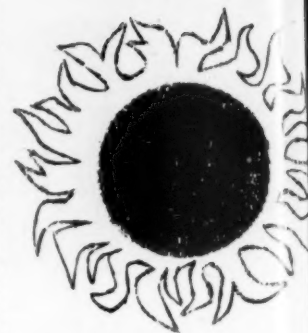
*now turn the page for additional examples...*

**Royal**

METAL FURNITURE SINCE '07

ROYAL METAL MANUFACTURING COMPANY  
75 N. Michigan Avenue • Chicago 1, Illinois  
Offices and plants from coast to coast





Shown on the other side of this page, are the 1230 Executive Chair, 515-S Adjustable Chair and the 760 Club Chair.



## Royal's more than 50 years' experience is your assurance of dependability

**(a) 1210...EXECUTIVE POSTURE CHAIR**—A big chair—big in size, comfort and reputation. Contour-shaped seat, back and arm rests all are special molded, cored foam rubber. Upholstery in luxurious Royalpoint or combination of Royalpoint and Super-Tuftex. Every adjustment to easily meet individual requirements.

**(d) 761-763-765...SECTIONAL GROUP**—A versatile and stunning group that offers almost unlimited room planning possibilities. Center Section 761 without arms, Right Arm Section 765, Left Arm Section 763. Flex-spring seats and backs upholstered in Super-Tuftex or Royalpoint. Frame is modern  $\frac{13}{16}$ " square tubing, Satin-Chrome finished.

**(b) 1265...SECRETARIAL POSTURE CHAIR**—A fine chair with molded and cored foam rubber seat and comfortable hinged back that is also adjustable up, down, forward and back. Simple, trouble-free seat adjustment permits effortless, instant height adjustment from 18" to 21½". Frame, Plastelle enamel finished.

**(c) 911...ARM CHAIR**—A sturdy, useful and long-lasting chair with comfortable flex-spring seat mounted on an all-metal, die-ventilated seat pan. Square tubular steel frame is all-welded, Plastelle enamel finished, has flared legs to protect walls, and leg braces for additional strength.

**(e) 913...SIDE CHAIR**—A fine quality side chair matching the 911 Arm Chair in construction and design. All-metal, all-welded square tubular steel frame is Plastelle enamel finished. Legs are flared to protect walls against marring. Upholstered seat is of flex-spring construction.

Royal Metal Manufacturing Co., Dept. 302  
175 N. Michigan Ave., Chicago 1, Ill.

\_\_\_\_ Please send information on complete line.

\_\_\_\_ Please have representative call.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**Royal**  
METAL FURNITURE SINCE '87

ROYAL METAL MANUFACTURING COMPANY  
175 N. Michigan Ave., Chicago 1, Ill.

Factories: Los Angeles • Michigan City, Ind.  
Plainfield, Conn. • Warren, Pa. • Galt, Ontario

Showrooms: Chicago • Los Angeles  
San Francisco • New York City

Authorized Dealers Everywhere.

**THE STRONGEST WIRE  
MAKES THE STRONGEST ROPE...  
THAT'S WHY ONLY 1105 IS USED IN**

**ROEBLING**

*Royal Blue*  
  
**WIRE 1105 ROPE**

1105 WIRE is the strongest and toughest rope wire that has ever been developed.

Royal Blue is a new all-steel wire rope. It's made of 1105 wire—stands up in service—gives you more for your money because it has more to give.

Ask us for the full facts about Royal Blue Wire Rope, or contact your Roebling distributor.

**ROEBLING**

*Subsidiary of The Colorado Fuel and Iron Corporation*

**JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J.** BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 BLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 3340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST, AVE. S. • TULSA, 321 N. CHEYENNE ST. EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N. Y.



The image shows two overlapping purchase order forms from Worcester Pressed Steel Company. The forms are filled out with various details, including item descriptions, quantities, and prices. The top form is partially obscured by the bottom one. The bottom form features a logo of a person in a hard hat and safety gear, and a 'CONDITIONS' section. The company name 'WORCESTER PRESSED STEEL COMPANY' is prominently displayed on the bottom form.

The purchase order form of Worcester Pressed Steel Co. is a six-part form of Monroe Business Forms, Inc. The original copy (buff) is forwarded to the supplier, or vendor. With it goes a separate sheet containing the terms and conditions of the purchase order. The second copy (white) is retained by purchasing and bears an imprinted area for further information on invoices and receipts in the area occupied by the logotype on the original. The third copy (blue) is for the use of audit department. The requisitioning department gets the fourth, or green, copy. A white copy, with unit, price, per, and terms blocked out, is forwarded to the receiving department. The final copy (yellow) is a tickler for miscellaneous reference.

## Worcester Pressed Steel Forms Show Good Design

**S**IMPLICITY is the hallmark of an effective form, purchasing or otherwise. However, simplicity and effectiveness are not gained through the sacrifice of important data. Rather, the form is a blend of a shrewd physical design and a careful analysis of required information. The form is complete, easily read, yet does not present a cluttered or complicated appearance.

The four forms presented here,



185



MR. J. PAUL WHITEHEAD, Vice President  
Heminway Corporation  
President of the Printing Industry of Connecticut

"Just as extra effort often spells the difference between success or failure, extra quality makes the difference between an excellent finished product and one that is merely adequate. Heminway's quality control proves that the slight extra cost, if any, of top quality supplies is far outstripped by the value and confidence returned."

**FOR EXAMPLE: Your business stationery.** Surveys by the National Stationers' and Office Equipment Association show that the paper constituting the average letterhead, envelope and file copy costs less than a postage stamp. This microscopic cost rises less than 1% of total correspondence costs when you entrust your letters—your personal representatives—to the highest-quality, most impressive, rag-content letter paper obtainable: ADVANCE BOND.

**ANOTHER EXAMPLE: Your business records.** Record paper averages but 1% of total accounting costs. This minute cost increases less than 1% when you select the most durable, permanent record paper made: L. L. BROWN's LINEN LEDGER.

Thus at practically no extra cost, you can be sure of prestige-enhancing stationery and dependable records regardless of time and hard use. These plus values have characterized L. L. Brown papers for 106 years.

Your regular supplier of stationery and records is well versed in the various L. L. Brown papers. He will gladly recommend those best suited to your particular requirements. L. L. Brown Paper Company, Adams, Mass.

# L. L. BROWN



"SO MUCH extra value  
FOR SO LITTLE extra cost"

Since 1849

For More Information Circle No. 268  
on Inquiry Card—Page 17

# office equipment

and supplies

A new, low-priced, electrically operated numbering machine is being produced by Roberts Numbering Machine Co., Brooklyn,



N. Y. It is equipped with a precision built interchangeable numbering head to automatically number from 1 to 999,999. It is easily set for consecutive, duplicate or repeat action. Roman or Gothic style figures can be furnished in size 3/32", 9/64" or 3/16". It plugs into any 110 volt AC outlet.

Circle No. 65 on Inquiry Card—Page 17

The McBee Co., Athens, O., has released a new poster for payroll writing. Called the Tab Poster, it provides for mounting the check on a movable carriage, which responds to a push button. In the original position, the name may be written on the check with registration on the journal. This step is eliminated if addressing equipment is used to prepare the checks and journal before payroll writing. The first movement of the check carriage collates check, journal and individual

earnings record for entry of hours and gross earnings. Another push of the button aligns all forms to receive deductions and net pay. The Tab Poster has a formica base; forest green tabulator in metal, with matching carbon shield. Actuating buttons are in red plastic.

Circle No. 66 on Inquiry Card—Page 17

Amberg File & Index Co., Kankakee, Ill., has announced the addition of a new and slightly larger file caddy. Known as File Caddy, Model 417, it is 3 inches wider



than the standard model 414 and will accommodate legal size papers and documents. It is of Hammerloid enamel steel with a sliding top and protective lock. It comes complete with 25 folders of the metal tab suspension type. It has an overall height of 26½", and is mounted on four legs with large casters for mobility.

Circle No. 67 on Inquiry Card—Page 17



The Remington Noiseless



The Remington Electric



The Remington Standard



You can count on Remington Rand to recommend just the right typewriter for your business needs...only we make all three...from the exquisite-letter producing Remington Electric through the unbelievably easy-handling Remington Standard to the amazingly quiet exclusive Noiseless!

**Remington Rand** DIVISION OF SPERRY RAND CORPORATION

REMINGTON RAND, Room 1248, 315 Fourth Ave., New York 10

Please send literature about the typewriters checked:

- ☐ The Remington Noiseless (RN8719)  
☐ The Remington Electric (RE8612)  
☐ The Remington Standard (R166)

NAME \_\_\_\_\_  
 TITLE \_\_\_\_\_  
 FIRM \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_ 7



## office equipment

The Bohn Duplicator Corp., New York, has announced an electronic stencil cutter which



permits any mimeograph machine to do the same kind of printing formerly possible only with printing type and engravings. Called the Electro-Rex, it transfers any graphic material to a special plastic stencil that is then run off, in

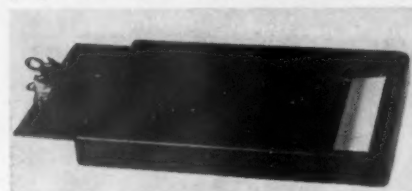
the usual manner, on a standard mimeo machine. The stencils can include headlines, type matter, forms, letterheads with or without text, sketches, drawings of any kind and even screened photos. The process is a combination optical scanning system and an electronic amplifier through which a cutting stylus is energized. The cutting definition can be adjusted from 125 to 750 lines per inch.

Circle No. 68 on Inquiry Card—Page 17

A material that filters out 95% of the sun's ultra violet rays, without cutting down illumination, is now available from Hunter Photo-Copyist, Inc., Syracuse, N. Y., for use with its photo copy equipment and Heccokwik papers. Known as Transshade, the amber-colored plastic can be ordered to fit any size window (rolls up and down like a window shade) or fitted over fluorescent lights. Non-flammable, it is also resistant to the effects of temperature and humidity.

Circle No. 69 on Inquiry Card—Page 17

A lightweight, portable desk, consisting of a storage box for papers with a clip-board lid that



slides in and snaps shut, is now available from Arthur Kramer, Evansville, Wis. Made of pressed wood, the portable desk is finished in green. It comes in four sizes: note-paper, letter, legal (all 1 1/8" deep), and deep legal, 2 1/4" deep.

Circle No. 70 on Inquiry Card—Page 17

A new development in labeling file folders has been announced by Avery Adhesive Label Corp., Monrovia, Calif. It is done with self-adhesive, permanent gripping labels, eliminating moistening, sticky fingers and smudged folders. The labels come in sheet form, ready for typing. In addition to folder labeling, they may be used as bin and storage shelf markers.

Circle No. 71 on Inquiry Card—Page 17



*on brighter, whiter*

# WESTON BOND

Just tell your printer to use brighter, whiter Weston Bond for your letterheads and matching envelopes. This fine rag content paper costs no more yet makes a striking difference in appearance and performance.

Write for Sample Book  
Address Dept. PN



BYRON WESTON COMPANY  
DALTON, MASSACHUSETTS

Makers of Fine Papers for Business Records Since 1863

For More Information Circle No. 270 on Inquiry Card—Page 17



## DIGIT DROOP?

Not with TICONDEROGA

Fingers won't cramp or tire even after long sessions with a Dixon Ticonderoga pencil. No finger fatigue common with other writing instruments. Prove it to yourself. Try Ticonderoga — it's *Leadfast*.

**TICONDEROGA**  
THE JOSEPH DIXON CRUCIBLE CO.  
Pencil Sales Division, PG-2, Jersey City 3, N. J.

For More Information Circle No. 271  
on Inquiry Card—Page 17

PURCHASING



# NEW! Victor Calculator

**Exclusive: Fully automatic multiplication . . .  
automatic constant lever . . . total transfer feature**

The fabulous new Victor Mult-O-Matic is the only machine with completely automatic multiplication from one simple set of keys.

Multiply figures as you would write them—only the multiplicand, multiplier and answer, properly identified by symbols, are printed on the tape.

The simplified automatic constant lever lets you multiply the same figure any number of times without re-entering that figure each time.

The new and exclusive total transfer button lets you

retain a total in the machine so that it can be multiplied by another figure.

The Victor Mult-O-Matic is the perfect answer for all your figure work — it multiplies, adds, subtracts, divides. It's designed to save you time — for inventory, payroll, to check and extend invoices, figure discounts, percentages, proration problems, operating statements.

*Don't wait. Call for a free tryout! Look under "V" for Victor in Adding Machine section of your classified phone book. Or write Victor.*

**VICTOR ADDING MACHINE CO., CHICAGO 18, ILLINOIS**  
*Manufacturers of Business Machines, Cash Registers,  
Business and Industrial Systems, Electronic Equipment, Electri-Cars.*





*Always Ready to Write*

**WRITES FOR MONTHS WITHOUT REFILLING**



**THE PEN THAT FILLS ITSELF**  
instantly—every time you  
return pen to socket.



**HOLDS 40 TIMES MORE INK**  
than ordinary fountain  
pen. Needs no attention  
for months on end.



**CHOOSE THE RIGHT POINT**  
for the way you write—  
by number. More than 30  
point styles.

Try one on your own desk for 30 days. Your money  
refunded if you are not completely satisfied.

DESK PEN SETS BY

**Esterbrook®**

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY  
The Esterbrook Pen Company of Canada, Ltd., 92 Fleet Street, East, Toronto, Ontario

COPYRIGHT 1956, THE ESTERBROOK PEN COMPANY

For More Information Circle No. 273 on Inquiry Card—Page 17

office  
equipment



A new line of office furniture is being introduced by **Hamilton Mfg. Corp., Columbus, Ind.** Suitable for reception rooms, conference rooms and private offices, the line features seamless tubular steel construction and reversible cushions. The line has 12 models: a chair, a settee and a sofa, each available armless, with two arms, and with right or left arm only. All models are available in a variety of upholstery materials, patterns and colors. Basic frame colors are: black, tan tint, green tint, gray and brown.

Circle No. 72 on Inquiry Card—Page 17



A new floor model of the **Typro photo lettering machine** is now being marketed by **Halber Corp., Chicago.** The new model has a functional cabinet base, making it a self-contained unit. Type proofs can be composed on film as well as paper, in reverse as well as positive.

Circle No. 73 on Inquiry Card—Page 17

**PURCHASING**



## Worcester Pressed Steel Forms Show Good Design

(Continued from page 185)

three simple tab settings are all that are needed to fill in the top half of the form. Then, too, it is nearly impossible to omit any basic item of information as one, single horizontal line is used for that purpose.

In moving to the second half of the form, only three more tab stops are added to the three already set on the typewriter. There is no general clearing on tabs needed, for the three initially set stops are still used for further completion of the form.

Another interesting factor of the form is noticed on examination of the carbon copies. With the purchase order number recorded at the left, the carbon copies carry a section for recording invoices and receipts in the area occupied by the logotype on the original copy. Often, this information area is carried by extending the length of the form on the carbon copies.

The practicality of the Worcester procedure is evident in that the purchase order number and a recording of invoices and receipts can be read at a single glance. There is no need to check the top of the form for the number and then skip to the bottom of the sheet for further information.

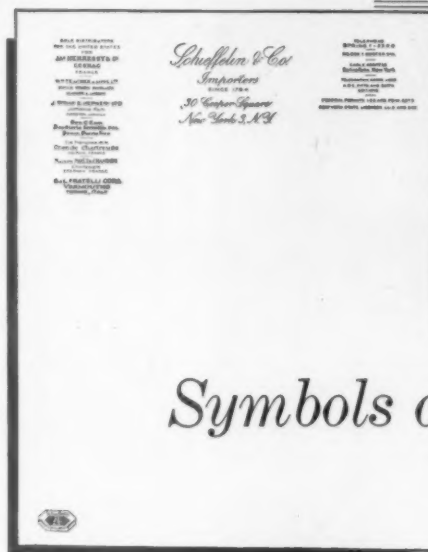
Worcester's receiving slip lends itself to completion by pen or pencil just as readily as it does to the typewriter. The boxes above the listing area are large enough to make it easy to fill-in or check-off the required information without danger of crossing lines and confusing the data.

Also, on this form, the company retains the left hand margin position of the purchase order number. This is part of the system which Worcester carries through on all forms pertaining to, or recording, purchase order numbers. A common location makes checking back on PO's a simple operation.

These are simple forms, yet complete in required information. They are clean, easy to use, and easy to read.

### Prominent Users of Strathmore Letterhead Papers: No. 120 of a Series

*These are the symbols of  
some of the world's finest  
spirits...imported by  
Schieffelin from France, Scotland,  
Italy, Jamaica and Puerto Rico.*



## *Symbols of* **Quality!**

**One of the more important symbols** representative of the high standards of Schieffelin & Co. is its letterhead on Strathmore paper. If you are looking for a letterhead that is symbolic of the character of your firm, ask your supplier to show you how expressive your letterhead looks on Strathmore. Let the fine appearance and quality of Strathmore Letterhead Papers strengthen the impression your correspondence makes.

**Schieffelin & Co.** brings spirits of quality to connoisseurs through its Import Division, the sole purveyor in this country of Hennessy Cognac, Teacher's Highland Cream Scotch Whisky, Chartreuse Liqueur, Moët & Chandon Champagne, Don Q Rum, Dagger Jamaica Rum and Cora Vermouth. Famous throughout the world, these respected brands echo the Schieffelin trademark—Quality. Integrity. Service.

STRAITHMORE LETTERHEAD PAPERS: STRATHMORE PARCHMENT, STRATHMORE SCRIPT, THISTLEMARK BOND, ALEXANDRA BRILLIANT, BAY PATH BOND, STRATHMORE WRITING, STRATHMORE BOND, ENVELOPES TO MATCH CONVERTED BY OLD COLONY ENVELOPE CO.

STRATHMORE THIN PAPERS: STRATHMORE PARCHMENT ONION SKIN, STRATHMORE BOND ONION SKIN, STRATHMORE BOND AIR MAIL, STRATHMORE BOND TRANSMASTER.

# STRATHMORE

## Makers of Fine Papers

STRATHMORE PAPER COMPANY, WEST SPRINGFIELD, MASSACHUSETTS  
For More Information Circle No. 274 on Inquiry Card—Page 17

Your Best Buy's

# MONGOL

2,162 words  
for  
one cent\*



\*In actual writing tests by New York Testing Laboratories, Inc., MONGOL No. 2 pencils averaged 16,230 words per pencil, which at the retail price of 7½¢ is 2,162 words per penny. Large lots mean even more savings.

Economy's only one reason why Mongol is the preferred pencil all over America.

2 FOR

**15¢**

Slightly higher  
west of Rockies

- Mongol writes blacker with less bearing down...makes writing easier.
- Mongol needs less sharpening... the points don't snap or crumble.
- Mongol erasers are "Pink Pearl" quality, America's favorite for smoothness.
- Mongol alone has new bull's eye degree marking for spot identification.

Since 1849

Trademarks Reg. U. S. Pat. Off.

## EBERHARD FABER

puts its quality in writing

NEW YORK • TORONTO

Tear out this advertisement — write in on your company letterhead for a free sample

## There is no place like 1st place

... especially when it comes to a routing slip on a much sought after copy of an important business publication like PURCHASING Magazine.

Every person engaged in purchasing... especially in a position such as yours... should have their own personal copy. They should have a copy to which they can readily turn for ideas and new products... a copy they can read thoroughly and leisurely. This essential purchasing tool should be right there on their desk—as near to them as their telephone, their pen, or the other things so vital to their working day.

To help YOU get your personal copies of PURCHASING, we have enclosed a subscription order card in this issue. Just tear it out, complete, and mail it today—postage free. Your subscription will be entered immediately and you or your company invoiced. The rate is \$4.00—a small investment in your future, but one that will pay tremendous dividends.

If the order blank has been removed before you receive this issue, just send your order to Circulation Department, Purchasing Magazine, 205 E 42nd Street, New York 17, New York.

## office equipment

### PERSONNEL CHANGES

**Kenneth P. Morse**, executive vice president and general manager of **The Standard Register Co., Dayton**, was elected president of the Office Equipment Manufacturers Institute at its recent meeting in New York City. Mr. Morse succeeds **Sheldon Hall**, vice president and secretary of the **Burroughs Corp., Detroit**.

**Marchant Calculators, Inc., Oakland, Calif.**, has appointed **Lloyd L. Stanley** district manager of Marchant's Long Beach, Calif., office.

**W. B. Thomas** has been named midwestern divisional sales manager of **The McBee Co., Athens, O.**, a division of **Royal McBee Corp.** He fills the post left vacant when **A. T. Craft** was moved up to general sales manager.

A shift in the executive setup of **Marchant Research, Inc., Oakland, Calif.**, manufacturers of electronic computer and data processing equipment, has been announced. **Walter Kassebohm** is now president of the company, succeeding **George B. Greene**. Mr. Greene continues as advisor on development work.

**Neal W. Kidney** has been named district manager of the new office in **Manchester, N. H.**, by **Marchant Calculators, Inc., Oakland, Calif.**

**Harry L. Maley**, formerly home office assistant general sales manager, is now Chicago branch sales manager for **Remington Rand Division, Sperry Rand Corp., New York**. Mr. Maley succeeds **Virgil E. Logan**, who retired after 36 years with the company.

Two new appointments have been announced by **Ditto, Inc., Chicago**. **George A. Stoltz** is now manager at **Memphis, Tenn.** And, **Robert J. Farrell** is manager in **Peoria, Ill.**

FEBRUARY, 1956

## Your Reception Room is *YOU* to Your Visitors



### INDIVIDUAL CHAIRS ADD TO THE LOOK OF HOSPITALITY AND SUCCESS

First impressions are good—and lasting—when you compliment your visitors with the fine appearance and comfort of Harter chairs in your reception room.

With these chairs you can enhance the color scheme of your offices. You choose from a wide range of colors in leather, fabric or plastic upholsteries. For example, the C-1910 chairs are shown above in top grain leather. The Harter 710 pictured separately has rich fabric upholstery.

Metal finishes are durable baked-on enamel. Again you select the color either from the standard office finishes or from the new pastels which harmonize with the decorative tones in upholstery.

Top quality upholsteries and steel construction enable Harter chairs to keep their like-new appearance for years and years. They're a sound business investment that says nice things about you to your visitors.

Write for literature on Harter chairs... we'll send name of your nearest dealer.



Model 710



## HARTER POSTURE CHAIRS

STURGIS, MICHIGAN

HARTER CORPORATION, 229 Prairie Street, Sturgis, Michigan  
In Canada: Harter Metal Furniture Ltd., Guelph, Ontario

For More Information Circle No. 276 on Inquiry Card—Page 17



# association news

## Mayor Addresses Denver Association



109 members and guests of the Purchasing Agents Association of Denver were privileged to hear their mayor speak at a recent meeting. The occasion was Executive Night. The speaker was Mayor Will F. Nicholson. He was introduced by Louis Middlemist, PA for the city and county of Denver. The mayor's topic was "Denver Today." And he discussed two subjects which were of vital interest to the PAs present—the municipal water problem and the annual budget. Congratulating the mayor after his fine talk were Louis S. Middlemist (left) and E. F. Saulsberry (right), Association president.

## Bosses' Night in Milwaukee

At the December meeting of the Milwaukee Association of Purchasing Agents on the 13th of the month, a large crowd attended the "Bosses' Night." A commodity discussion on Steel, including a film "Big Saul," a dramatic story of the operation of a steel mill, was shown. A presentation by R. M. Buddington, General Manager of Sales, Inland Steel Company, gave a good picture of the current market.

The dinner speaker was Mr. Ralph W. Ells, Chief Economist at the Allen-Bradley Company,

who spoke on "The Economical Outlook for 1956." Mr. Ells reviewed the reasons for the increase in the standard of living in the United States of 40 to 45 percent since 1945. Then he reviewed the reasons why he believed there would be no major depression in the immediate future.

Commenting on the 1956 outlook he said business volume would be approximately 5% less than in 1955. Estimating \$375 to \$400 billion, he expected auto production and building to decrease about 10%. Unemployment would

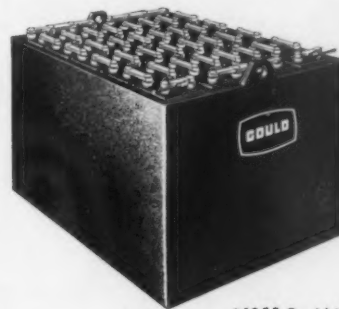
be down slightly, while prices would average the same as in 1955, with strong prices for the first three months and a downward trend in the last six months. Salaries and wages would be up approximately 5¢ per hour and there would be no appreciable variation in the cost of living. There will be no change in the Wisconsin State, Federal Excise or Corporation taxes, he believed, while there was a possibility of an approximate 10% decrease in individual taxes. Profits for the year would be slightly less.



## "Battery Performance is my Business!"

Your Gould Field Engineer has one job—to make sure you get greatest possible service from your batteries. In performing that job he sees to it that your batteries are properly cared for and maintained; he instructs your personnel in systematic maintenance methods; he helps you anticipate battery needs; he makes sure you get maximum battery performance.

Gould Field Engineering Service is nationwide. Every member is factory-trained . . . has plenty of on-the-job know-how. There's a Gould Field Engineer in your area. He's as near to you as your telephone. Call him. And when you see him, ask him for the new Gould Plus-Performance Plan material for your battery maintenance staff.



America's Finest!  
GOULD  
Industrial  
Truck Batteries

©1955 Gould-National Batteries, Inc.

**"BETTER BATTERIES THROUGH RESEARCH"**

# GOULD

## Batteries

■ GOULD-NATIONAL BATTERIES, INC.

TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

# Truck rolls over...



**Crush proof container.** Here's the Gair container that brought White Echo depth sounders through truck smash-up without a scratch.

## but Gair containers save fragile electronic depth sounders!

These are the facts — straight from Tom Crotty, factory manager, Wilfrid O. White & Sons, Inc., Boston manufacturer of navigational instruments:

"Nineteen White Echo depth sounders, packed individually in Gair-designed containers, were ticketed for anxious customers in New York. The truck was involved in a serious accident. Most of the cargo was a complete loss and we figured our in-

struments were damaged beyond use.

"Upon return of the shipment we found that although some of the containers were crushed, the liners had prevented even the slightest damage to the sounders. Electronic tests showed each instrument in perfect operating condition."

Your product can have the same protection that saved these fragile instruments. Write your nearest Gair Container plant to find out how.

### YOU'RE LIVING NEXT DOOR TO THE EXPERT

**GAIR CONTAINER PLANTS:** Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Jackson, Miss. • Los Angeles, Cal. • Martinsville, Va. • New Orleans, La. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.



# GAIR

SHIPPING CONTAINERS • FOLDING CARTONS

PAPERBOARD • KRAFT BAGS AND WRAPPINGS

ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N.Y.

SC-5.10

For More Information Circle No. 278 on Inquiry Card—Page 17



# *Better* LIGHT *guarantees better* PRODUCTION!

That's why LUSTRA JADE-LITES are the first choice in so many factories, laboratories, accounting offices—in fact, any critical work area

Wherever installed, Lustra Jade-Lite Fluorescent Tubes have upped the quality and quantity of production, for the reason that their greater light output with reduced glare helps eliminate eye strain.

Also important, the guaranteed extra-long-burning life of Jade-Lites gives remarkable economies in replacement and maintenance costs.



**WITHOUT OBLIGATION,** your local Lustra Man will demonstrate — under your own working conditions — the greater efficiency of Jade-Lites. You can see for yourself how almost any lighting problem can be eliminated with the complete line of Lustra Double Duty Lamps, Fluorescent Tubes and allied electrical products. Write for literature to  
**Lustra Corporation,  
Dept. P256,  
36 Washington St.,  
Brooklyn 1, N. Y.**



# Lustra

AMERICA'S DATED LAMPS

For More Information Circle No. 279 on Inquiry Card—Page 17



**YOUR  
VICTOR  
DISTRIBUTOR**

can meet all  
your  
metal cutting  
needs

Whatever your particular cutting operations, there are Victor Hand and Power Hacksaws, Metal and Wood Cutting Band Saws and Hacksaw Frames to meet your specific requirements.

Every Victor distributor can give you prompt delivery of any metal cutting saw you want. His men are backed up by Victor factory experts who can show you the way to new speed and economy on production metal sawing operations.

Remember, no blade on the market will cut faster or last longer than the right Victor Blade — at the price you want!

And for top performance at a low price, use Victor "Moly"® High Speed Steel blades. Victor developed this high speed, heavily-alloyed steel blade of molybdenum. Remember, "Moly" High Speed blades outlast standard steel blades 10 to 1, cut as well as the best high speed steel blades made, but are substantially lower in cost.

**Free!**

Ask your Industrial Distributor for a supply of our NEW Metal Cutting Booklets and Wall Charts.

Sold Only Through  
Recognized Distributors

**VICTOR** 1089

SAW WORKS, INC., MIDDLETOWN, N.Y., U.S.A.  
MAKERS OF HAND AND POWER HACKSAW BLADES, FRAMES,  
AND METAL AND WOOD CUTTING BAND SAW BLADES

For More Information Circle No. 280  
on Inquiry Card—Page 17

## New York Association



Meet the Education Committee of the Purchasing Agents Association of New York. Seated (left to right) are John Bion, George Baker, and Phillips Hoyt. Standing are Walter Willets, Jim McAleer, James McGready, and Dick Chapin.

## Foreign Visitors Attend Milwaukee NIGP Meeting

A delegation of governmental purchasing officials from foreign countries were interested observers at the quarterly meeting of the Wisconsin Chapter, National Institute of Governmental Purchasing, held in the board room of Milwaukee City Hall on December 2nd. This delegation, brought to this country under the auspices of the U. S. Industrial Services Administration, include Jose

Legarda, chief buyer, Manila, P.I.; Oscar Salcedo, purchasing agent, Bolivia; Zia Hosseinie, warehousing officer, Iran; Yung Chul Kim and June Shik Kim, purchasing assistants, Seoul, Korea. Besides attending the chapter meeting, the group made a tour of Milwaukee's central municipal warehouse.

Guest speaker at the meeting

(Please turn to page 202)

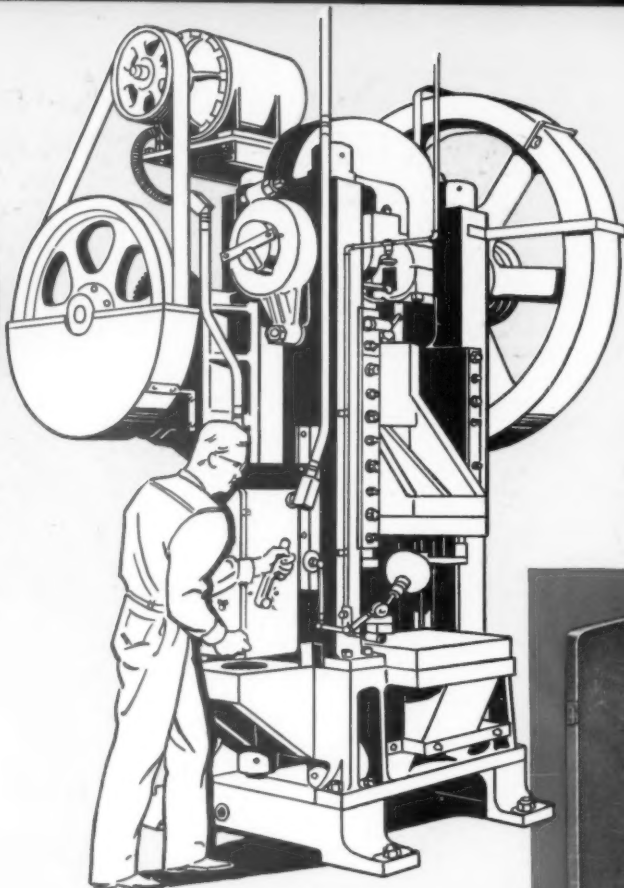


In Milwaukee to study supply management were from left (rear) June Shik Kim and Yung Chul Kim from Korea; and Oscar Salcedo from Bolivia. In the front are Zia Hosseini from Iran; Jose Legarda from the Philippines and their host in Milwaukee, Joseph Nicholson, city purchasing agent.

For More Information Circle No. 281  
on Inquiry Card—Page 17→



The Sign of  
QUALITY  
Motor Control



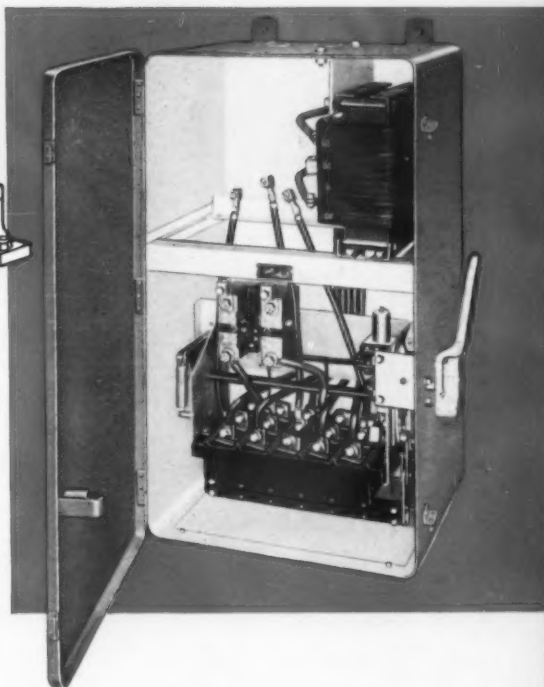
Bliss No. 207 Press in the plant of V. W. Danielson Manufacturing Co. It is started with an Allen-Bradley Bulletin 646 manual autotransformer starter, as shown below, with cabinet open to show air-break contacts and reduced voltage transformer.

## BULLETIN 646

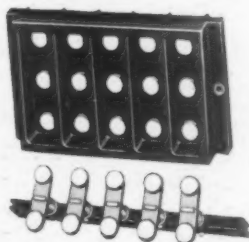
### MANUAL AUTOTRANSFORMER STARTERS

#### with AIR-BREAK CONTACTS

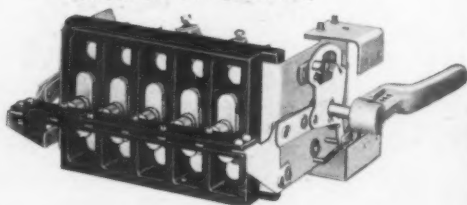
up to 75 HP, 220 V; 150 HP, 440-550 V.



#### Stationary and Moving Contacts of Bulletin 646 Reduced Voltage Autotransformer Starter



Cadmium silver stationary contacts are mounted in the arc hood and the moving contacts are on the crossbar.



Simple switching mechanism which first connects motor to reduced voltage taps and then shifts it to full line voltage.

Freedom from messy, oil-immersed starter contacts and oil tanks... that's the outstanding advantage of Allen-Bradley Bulletin 646 autotransformer starters up to 75 hp, 220 v; 150 hp, 440-550 v. This range covers most squirrel cage motors. The air-break, cadmium silver contacts need no maintenance.

The starting lever is so interlocked that the operator must pull the lever FIRST to the START position. After a preset, adjustable interval, a bell rings to indicate when the lever should be pushed into the RUN position. The starter is held in the RUN position by a magnetic latch, which drops out and stops the motor in case of overload or line failure.

In flour mills, grain elevators, and other places with explosive dust hazards, oil-immersed contacts must of necessity be used. For such applications an oil tank and copper-to-copper contacts can be supplied. Write for Bulletin 646.

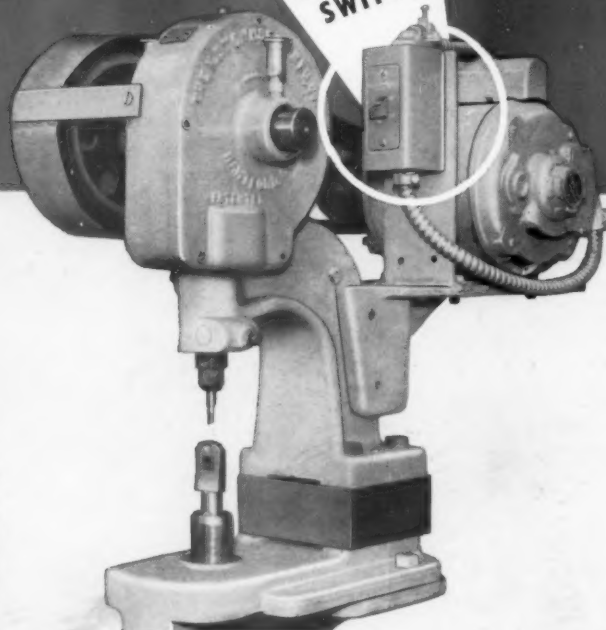
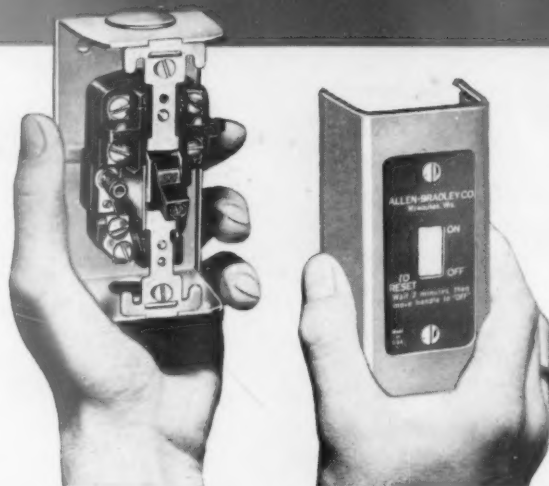
Allen-Bradley Co., 1316 S. Second St., Milwaukee 4, Wis.  
In Canada—Allen-Bradley Canada Ltd., Galt, Ont.

2-56-M

**ALLEN-BRADLEY**  
MOTOR CONTROL  
QUALITY



# SMALL MOTORS need overload protection too!



## Because

### SMALL MOTORS CAN BE AS IMPORTANT TO PRODUCTION SCHEDULES AS LARGE MOTORS

Here is an outstandingly popular starter for applications using motors of ONE HORSEPOWER OR LESS.

It is a small, manually operated starter that is equipped with a time-tested, reliable A-B overload breaker. A soldered ratchet trips the operating lever in case of a sustained overload. It is reset, after tripping, merely by moving the operating lever to the OFF position. Overload heater ele-

ments are available to cover the ratings of this starter.

The Bulletin 600 starting switch is available in single and double pole construction. Its double break, silver alloy contacts provide high interrupting capacity. The contacts are always in good operating condition. They never need to be cleaned, filed or dressed. Please write for a copy of Bulletin 600 for complete information on the Bulletin 600 line.

#### SIMPLE DESIGN



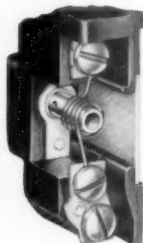
Simple ON & OFF snap switch ... easy access to terminals ... ample wiring space ... silver alloy contacts need no cleaning or maintenance.

#### ATTRACTIVE APPEARANCE



Streamlined enclosure in grey enamel, and bonderized to assure positive binding of enamel finish to resist corrosion. The pilot light is optional.

#### OVERLOAD BREAKER



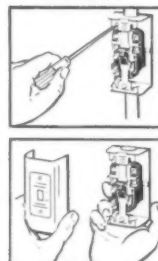
According to National Elec. Code ruling, motors of 1 hp or less, automatically started by thermostat, float switch, etc. must have overload protection.

#### FITS STANDARD SWITCH BOXES



Bulletin 600 starters fit any standard 2½ in. deep wall switch box. Can be mounted in machine frame or base. Available with pilot light.

#### EASY TO INSTALL



Remove 2 screws on front of starter ... slip off cover ... attach conduit ... pull in wires and connect to terminals ... replace the cover.

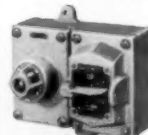
#### VARIETY OF ENCLOSURES



Type 7 for hazardous locations.



Type 4 water-tight.



Type 4 with pilot light.

Allen-Bradley Co.  
1316 S. Second St.  
Milwaukee 4, Wis.  
In Canada—Allen-Bradley  
Canada Ltd., Galt, Ont.

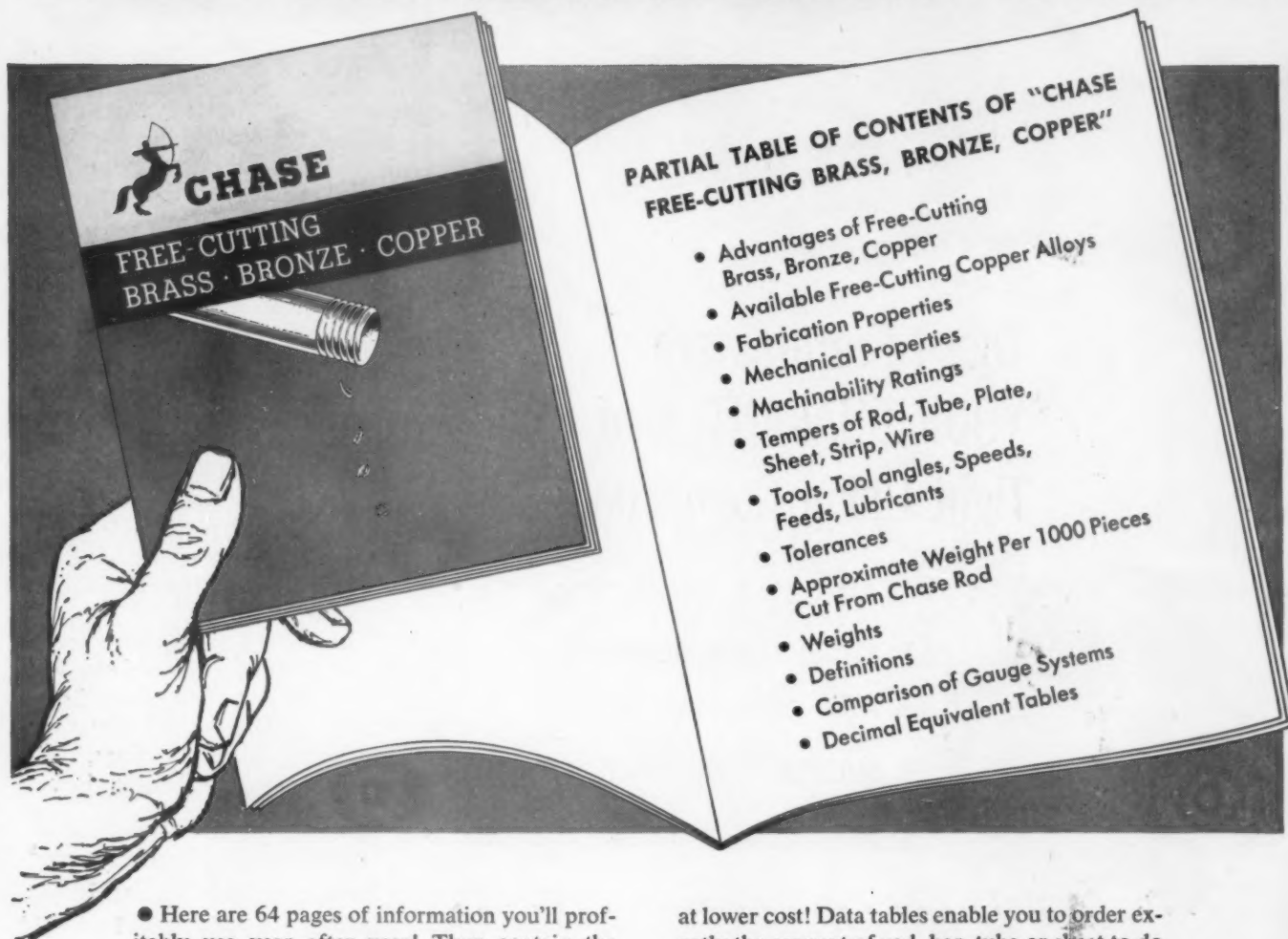


# ALLEN-BRADLEY

BULLETIN 600 STARTING SWITCHES

QUALITY

# THIS FREE BOOKLET CAN CUT YOUR METALWORKING COSTS



• Here are 64 pages of information you'll profitably use year after year! They contain the straight facts about all the easily-machined Chase brass, copper and bronze alloys.

"CHASE FREE-CUTTING BRASS, BRONZE, COPPER" will help you select the alloys best suited to make your products faster, better, and

at lower cost! Data tables enable you to order exactly the amount of rod, bar, tube or sheet to do any given job.

SEE CHASE'S NEWEST MOVIE, TOO! "In The Chips" gives a demonstration of copper and its alloys in use. It was produced specifically for manufacturers of screw machine products.

The booklet is free! Movie showing is free, too! Send for them today!

# Chase

**BRASS & COPPER CO.**

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

*The Nation's Headquarters for Brass & Copper*

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
Baltimore	Cincinnati	Detroit	Kansas City, Mo.	Newark	Pittsburgh
Boston	Cleveland	Grand Rapids	Los Angeles	New Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Rochester
	St. Louis	San Francisco	Seattle	Waterbury	

CHASE BRASS & COPPER CO.  
WATERBURY 20, CONNECTICUT

PUR-256

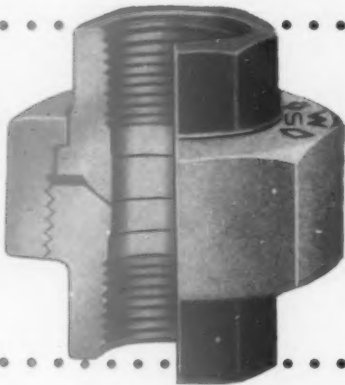
Gentlemen: ☐ Please send me your free booklet:  
"CHASE FREE-CUTTING BRASS, BRONZE, COPPER"  
☐ I would also like to see the movie, "In the Chips"

NAME .....  
POSITION .....  
FIRM .....  
STREET .....  
CITY ..... STATE .....

## W-S FORGED STEEL UNIONS...



These Features are  
**YOUR GUARANTEE** of a Safe,  
Tight Union Connection:



1. FORGED STEEL CONSTRUCTION—  
ASTM A-105, GRADE 2
2. SPHERICAL-TO-ANGLE MATING SURFACES
3. ANTI-GALLING, CADMIUM-PLATED NUTS

W-S Forged Steel Unions give you the kind of protection you need in high pressure piping systems. They're designed with precision-machined spherical-to-angle mating surfaces for positive seating, free from leaks even when pipes are slightly out of line. Cadmium-plated nuts resist galling and seizing and forged steel construction gives you the extra strength you need in high pressure service.

W-S Unions are available in 3000 lb. class, sizes  $\frac{1}{8}$ " to 3" in screw-end and socket-welding types. Send today for your copy of Bulletin U-1.

Sold Through  
Leading  
Distributors.



## W-S FITTINGS DIVISION

H. K. PORTER COMPANY, INC.  
Roselle, New Jersey

For More Information Circle No. 283 on Inquiry Card—Page 17

## association news

(Continued from page 198)

was Norman Amrhein, vice president of Federal Malleable Company and secretary of the Wisconsin chapter of the American Foundrymen's Society. Mr. Amrhein spoke on the purchase of malleable iron castings. His talk was illustrated with a color motion picture of foundry operations.

Reports on the October annual conference of NIGP, held in Washington, D.C., were presented by several of the members who had attended that meeting. Orville A. Gartman, City P. A. at Oshkosh, led a discussion on "Competition in the Purchasing of Office Machines."

The following officers were elected for 1956: *President*, William L. Boyd, Milwaukee Board of School Directors; *Secretary-Treasurer*, S. P. Graham, Milwaukee Sewerage Commission.

### Metropolitan Purchasers' Club Wanted No Business

That is what the members said in regard to their December meeting. No club business was to be transacted. The evening was devoted to holding the annual Christmas Party with a seven course roast lamb dinner starting at 6:30 P.M., followed at 8:30 P.M. by professional entertainment by top talent. Beer flowed freely at the dinner table, and so did vocal efforts of considerable merit rendering old time Christmas songs. The usual Christmas season prizes were awarded. Everyone agreed it was a banner evening. It was announced that applications are now open for the 1956-57 award of the scholastic award established by the club to perpetuate the memory of George E. Henry, who, before his untimely passing, was the associate editor of **PURCHASING** for many years.

**PURCHASING**





**NEW**  
**ABRASIVE SCREEN**  
**MADE WITH AVISCO RAYON**  
**OUTLASTS ORDINARY**  
**DISCS 7 TO 15 TIMES**

Working with The Carborundum Company, American Viscose helped develop a revolutionary sand screen to replace conventional abrasive discs. It has a useful life 7 to 15 times greater for two reasons: First, the removed material flows out through the open mesh. Second, it is made from Avisco filament rayon yarn that stays "young and muscular" even when loaded with phenolic resins and abrasives. The result is an abrasive far more useful to you.

American Viscose Corp., 350 Fifth Ave., New York 1, N.Y.

**AVISCO**

America's Greatest Industries Grow with **AVISCO®**



ONLY YOUR  
**Browning**  
DISTRIBUTOR  
OFFERS  
ALL THIS!

**A complete line of  
power transmission equipment  
using one interchangeable  
bushing system**



Your Browning distributor is your one source for an integrated line of V-belts and sheaves, roller chain and sprockets, paper pulleys, and rigid, flexible and chain couplings. The entire system employs Browning's unbreakable malleable split taper bushing, which mounts and unmounts easily but won't loosen in usage. Standardizes whole plant on one-type bushing, saves time, lowers maintenance costs. Your local Browning distributor stocks thousands of size and bore combinations. For details, call him or write us for Catalog GC101.

**Your Browning Distributor Offers  
Complete Power Transmission Service**

**Browning**

**MANUFACTURING COMPANY  
MAYSVILLE, KENTUCKY**

For More Information Circle No. 285 on Inquiry Card—Page 17

## association news

### Ladies' Night Held By Dayton PAs

The dinner meeting on December 6th, held at the Miami Valley Golf Club, was celebrated by the Purchasing Agents of Dayton, Ohio, as Ladies' Night. Dinner was served at 6:30 P.M., followed by an entertaining talk by Herbert N. Eikenbary, a Dayton lawyer and a raconteur of the first order. 2nd vice president Phillip Hull, of the West Side Lumber Co., who was program chairman is to be congratulated for a most enjoyable evening. New members to the Association since the last meeting include Negley J. Cribbs of Airtemp Div., Chrysler Corp., William W. Kingston of Master Electric Co., Loren W. (Lany) Miller of Associated Spring, Don Applegate of Dayton Industrial Supply Co., and Robert L. Barton of Aerovent Fan Co. The Annual Winter Stag Party, held at the Wolhurst Club on December 15th, was an outstanding event.

### Central Iowa Ass'n Honors Past Presidents

The regular December meeting of the Purchasing Agents Association of Central Iowa, held on Tuesday the 13th at the Golf and Country Club, Newton, honored the association's past presidents and provided a double attraction. Present as guest speakers were A. W. Soell, president, N.A.P.A. and Walter Armstrong, 3rd District V.P. Both gave inspiring addresses. Prior to an exceptional chicken dinner served at 6:30 P.M., a social hour began at 5:30 P.M. Theme of the educational forum, which moderator Joe Kruger called to order at 4:00 P.M., was "Purchasing For Profit." The open discussion, following introduction of the subject, was brisk and pointed.

For More Information Circle No. 286  
on Inquiry Card—Page 17→

**PURCHASING**

## Brown Thermocouple Protecting Tubes for Every Application

The protecting tube is just as important as the thermocouple with which it is used. It not only safeguards the couple from mechanical damage, but also extends its useful life and preserves its accuracy by preventing corrosion from the medium in which the couple is inserted.

You can be sure of getting the best protecting tube for your application when you choose from the extensive Brown line. Included are numerous types of metal and ceramic tubes, which cover any combination of temperature, atmosphere and mechanical conditions under which thermocouples are used. Large stocks insure quick deliveries.

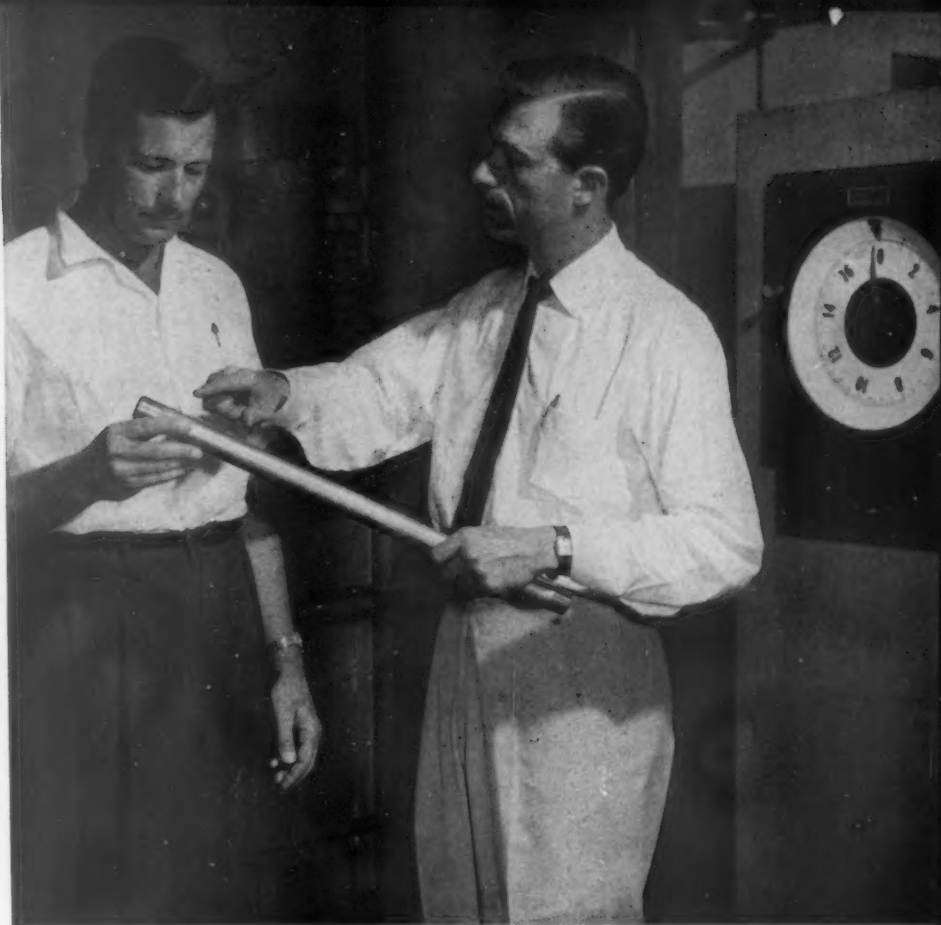


**Metal protecting tubes**, applicable to many heat-treating applications, are available in a choice of alloys . . . including carbon steel, cast iron, *Inconel*, nickel, *Resistat* (28% chrome iron), stainless steel and wrought iron. Maximum temperature service ranges from 1000 to 2200 F, depending on the alloy. All are manufactured to strict specifications.



**Ceramic protecting tubes** are generally used where temperatures exceed 2200 F. They are made from various specialized materials. Sillimanite, fused silica and Vycor are used as primary protecting tubes . . . with maximum temperature ratings of 3000, 2300, and 1800 F respectively. Many high-temperature installations require a secondary outer protecting tube, which can be firebrick, silicon carbide, or *Mullite* depending on the application.

Your local HSM will be glad to investigate the requirements of your specific installation, and to recommend the Brown protecting tube that will give you the best service.



*Here's why it pays  
to know your*



FRANK LONG, HSM (Honeywell Supplies Man) in the Houston area, points out advantages of Brown thermocouple protecting tubes to Travis Reese, at left, Supervisor of Tools and Supplies at the Cameron Iron Works, Inc., Houston.

The Honeywell Supplies Man can help you select proper pyrometer accessories. This is but one of the many extra values you get with the HSM Plan. Based on a survey of your plant requirements, this Plan establishes a long-range method of buying that simplifies your inventory, reduces paper work, and saves you money on all your pyrometer supplies purchases.

Find out for yourself how the HSM Plan can work for you . . . by calling your local Honeywell field office, as near to you as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● REFERENCE DATA: Write for Pyrometer Supplies Buyers' Guide No. 100-5.

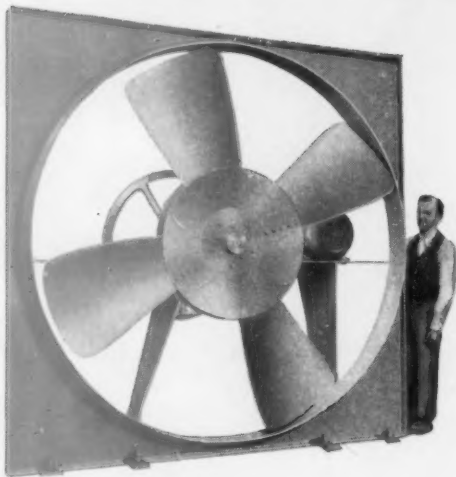


MINNEAPOLIS  
**Honeywell**  
BROWN INSTRUMENTS

*First in Controls*



# THE FAN YOU NEED may be on this page!



## VENTILATION!

*Low first cost! Low-cost installation!*  
"Buffalo" Package Propeller Fans are complete with motor and drive ready for easy installation. Husky, efficient, quiet. Full size range — 500 to 250,000 cfm, for one room or a whole plant. Write for Bulletins FM-115, FM-1234, FM-216 and FM-315.



## HEAVY-DUTY EXHAUST!

"Buffalo" Industrial Exhausters are husky steel plate all-welded construction for efficient handling of fumes, gases, fogs, dust and any materials a pneumatic system can carry. Available in models for temperatures up to 1000° F. Write for Bulletin FMB-435.

## BLOWERS — EXHAUSTERS!

Easily mounted units for 1001 blowing, cleaning, drying, draft jobs. Long-life cast iron housings. Write for Bulletin FM-900.



*"Buffalo"*  
**FANS**

## INDUSTRY'S CHOICE FOR 79 YEARS

- A type for every job!
- Proved in performance!
- Durable on the job!
- Quiet and efficient!
- Simple to service!
- Convenient to install!
- Reliable performance ratings!
- Competent engineers to advise you!

WRITE FOR  
BULLETINS



## BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

INDUSTRIAL EXHAUSTERS BELTED VENT SETS PROPELLER FANS "E" BLOWERS-EXHAUSTERS

For More Information Circle No. 287 on Inquiry Card—Page 17

## association news

### Washington PA's Host to Salesmen

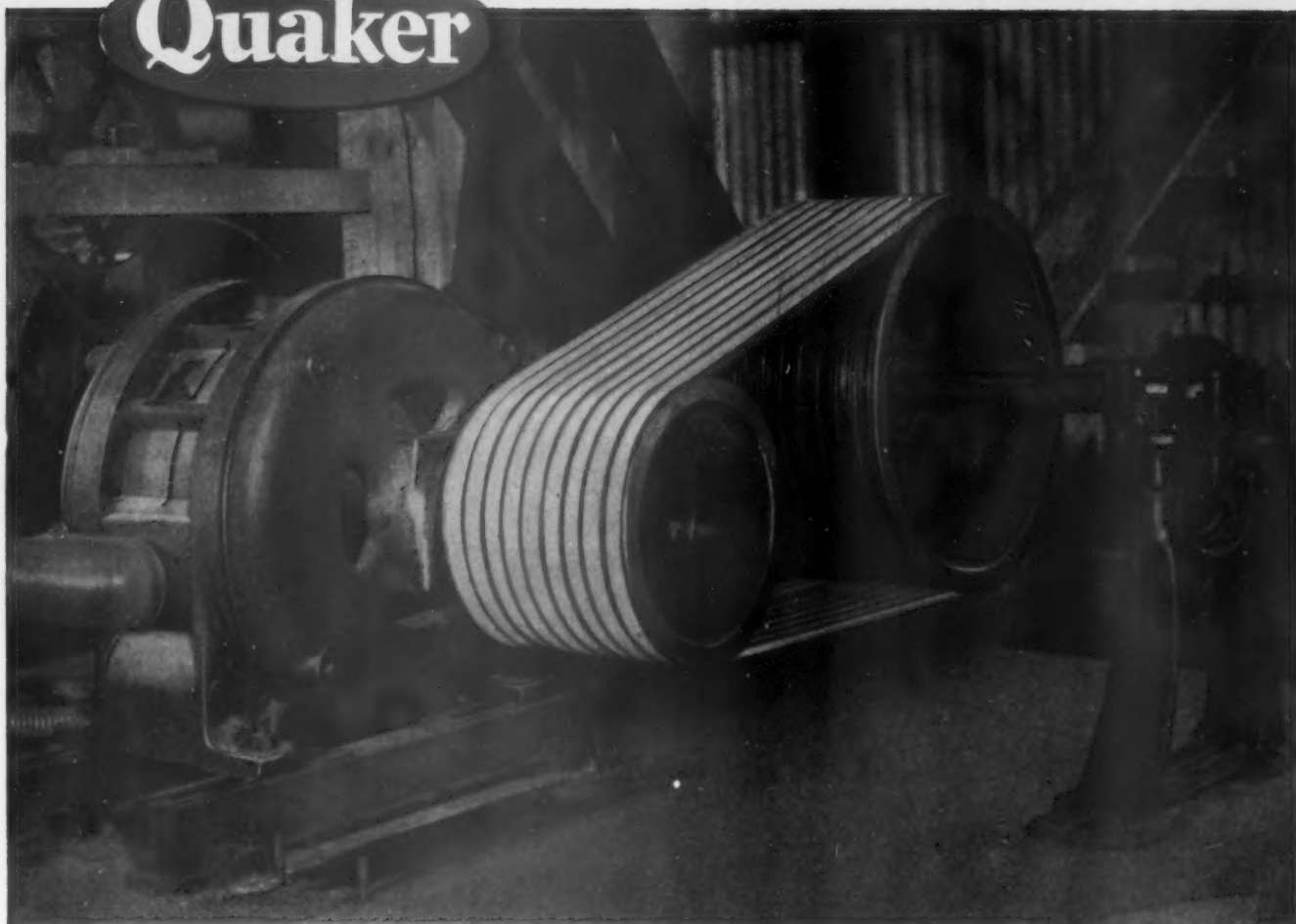
More than 600 purchasing agents, manufacturers, sales managers, engineers and other business executives were present on Thursday evening, November 10th, for the 26th annual Manufacturers' and Distributors' Night meeting of the Purchasing Agents Association of Washington. The event took place in the Spanish Ballroom of the Olympic Hotel in Seattle and brought together buyers and sellers of industrial and commercial firms in Western Washington with a few from Eastern Washington, Oregon and even British Columbia. George H. Wilson, purchasing agent, Atlas Foundry & Machine Co., Tacoma, and president of Purchasing Agents Association of Washington, was in the chair. Acting as toastmaster was Watt Fallis, former manager of purchases for Kenworth Motor Truck Corp.

Arrangements for the event were ably handled by the following purchasing agents: Paul R. Hendricks, City of Seattle; H. Gordon Ainslie, Barde Steel Co.; H. W. Biedel, Pa. Salt Mfg. Co.; Arthur Erickson, Union Oil Co. of Calif.; Norman A. Gilbertson, Consolidated Dairy Products Co.; H. F. Price, Bethlehem Pacific Coast Steel Co.; Dean Smith, Sumner Iron Works; Harry L. Thorson, Crown Zellerbach Corp.; M. C. Staley, A. M. Castle & Co.; and Earl C. White, Washington purchasing agent and manufacturer.

### Dallas Ass'n Pays Respects To The Ladies

Wednesday, December 14th, was the annual Ladies Night of the Purchasing Agents Association of Dallas. The event was held at the Lakewood Country Club, beginning with cocktails at 7:00 P.M., followed by a buffet dinner and dancing.

# Quaker



**Low stretch, high flexing  
stands up to shock impacts**



*Cut down buying costs. Order all your rubber product needs from a single source — your Quaker-Quaker Pioneer distributor. He's as near as your phone — and ready to serve you. Write for free brochure and name of nearest distributor.*

Strong and tough for large heavy duty multiple pulley drives, this V-belt gives long trouble-free performance where shock loads are encountered. Made of high tensile rayon cord, pre-stretched by exclusive heat stretching process. High traction jacket encloses multiple layers of rayon embedded in premium cushion rolls. All Quaker-Quaker Pioneer multiple V-belts are perfectly matched, assuring that each belt carries full share of load. Our complete line of industrial rubber products also includes hose, packing and moulded rubber for every use.

**HKP**  
DIVISION OF  
H. K. PORTER COMPANY, INC.

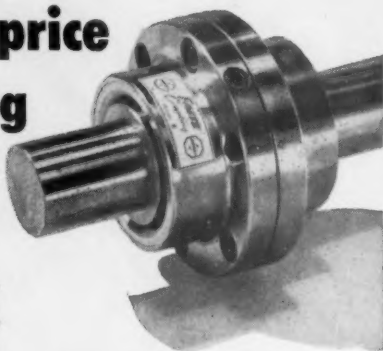
**H. K. PORTER COMPANY, INC.**  
**QUAKER RUBBER DIVISION**  
Philadelphia 24, Pa.  
**QUAKER PIONEER RUBBER DIVISION**  
San Francisco 7, California

FEBRUARY, 1956

For More Information Circle No. 288 on Inquiry Card—Page 17

## NEW! low-price Fast's Coupling

... for light and  
medium drives!



It's the new MODEL B—lighter, smaller, with all the famous Fast's features—yet priced at a new low! The new MODEL B is designed for light-to-medium drive units such as fans, blowers and pumps—where cost is important. Now these products can afford the rugged construction and trouble-free performance of genuine Fast's Couplings.

All steel, dust and moisture proof with metal seal, the new MODEL

B is available for shaft sizes up to 2 5/8". Sold with Koppers free engineering service!

Find out how the new Fast's MODEL B can solve your coupling problem. Write, wire or phone: KOPPERS COMPANY, INC., Fast's Coupling Dept., 3702 Scott St., Baltimore 3, Maryland.



THE ORIGINAL

**FAST'S Couplings**

Engineered Products Sold with Service

For More Information Circle No. 289 on Inquiry Card—Page 17

Another of the Reasons Behind Brad Foote Quality—

## TOOTH SPACING

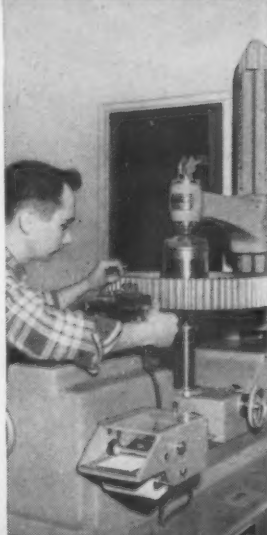
• 99% of gear drawings do not specify tooth spacing. For most applications, industry generally believes that competent gear manufacturers, working by standard AGMA practices, will produce gears within the limitations required for easy assembly and good load transmission.

• Occasionally, however, on very precise jobs you may find it necessary to specify extreme accuracy of tooth spacing and nonadjacent tooth spacing. Applications such as radar mounts, timing mechanisms, indexing mechanisms—all may require closer tooth spacing tolerances than are obtainable with average equipment in the hands of regular gear manufacturers.

• BRAD FOOTE welcomes precision jobs like these. We can add to highly specialized equipment specific experience in meeting this, as well as many other demanding requirements for special gear production.

• Prove to yourselves the savings that BRAD FOOTE quality can mean. Let us quote on the gear requirements for your next program.

**BRAD FOOTE MAKES ALL TYPES OF GEARS—  
IN A COMPLETE RANGE OF STYLES AND SIZES**



### BRAD FOOTE GEAR WORKS, INC.

1309 South Cicero Avenue • Cicero 50, Illinois

Bishop 2-1070 • Olympic 2-7700 • TWX CIC-2856-U

subsidiaries

AMERICAN GEAR & MFG. CO.  
Lemont, Illinois Phone Lemont 920

PITTSBURGH GEAR COMPANY  
Phone SPalding 1-4600 Pittsburgh 25, Penn.

For More Information Circle No. 290 on Inquiry Card—Page 17

## association news

### Denver PAs Addressed By Mayor On Exec's Night

Thursday, November 24th, was Executives Night for Purchasing Agents Association of Denver. A large crowd of purchasing agents and their company chiefs or departmental associates congregated at the Brown Palace Hotel for a sumptuous dinner at 6:30 P.M., preceded by certain types of liquid refreshments at 6:00 P.M. The Mayor of Denver, Will F. Nicholson was the guest speaker and let his audience in on the many problems in efficient big city administration. True to the spirit of an Executives Night, member Lou Middlemist, purchasing agent for the city and county of Denver, had the pleasant task of introducing his chief, Mayor Nicholson. He did it nobly with no display of stage fright or boss fright in the presence of Denver's most important VIP. The Winter Stag party which was held at Wolhurst on December 15th, lived up to the traditions of this annual extravaganza.

### Don't Tell A "Whopper" To A Chicago PA!

After last December 8th, it will not be too safe to tell a tall story to a brother purchasing agent from the Chicago Association. At the monthly dinner meeting held on Thursday evening the 8th, at the Hotel Sherman, an authority spoke on "Lie Detection." He was Fred E. Inbau, professor of law at Northwestern University. Among other distinctions, qualifying him as an expert on lie detection, Professor Inbau served as president of the Illinois Academy of Criminology and has had a book published on "Lie Detection and Criminal Interrogation." His penetrating address was accompanied by a movie screen projection showing lie-detector technique.



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**BECAUSE**  
we carry  
**LARGE TONNAGES**  
and will **PROCESS**  
all of the following  
to **YOUR EXACT**  
**SPECIFICATIONS**—and  
deliver promptly.

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## SOLAR STEEL CORPORATION



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Phone: Murdock 6-8300

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MODERN, HIGH SPEED, LOW COST PROCESSING SERVICES FROM 9 PLANTS

For More Information Circle No. 291 on Inquiry Card—Page 17



## Make high-strength aluminum castings without heat treatment!

Foundries without heat treating facilities are producing high-strength aluminum castings with Federated's Tenzaloy. Mechanical properties are equivalent or superior to the common heat-treated alloys, and impact strength is greater.

Tenzaloy, a product of Federated research, is a self-aging alloy of the aluminum-zinc-magnesium type. It reaches full strength after a few days aging at room temperature. No special casting precautions or facilities are required.

Tenzaloy castings have excellent machinability. They can be anodized to a superior white color. Tenzaloy is one of the few casting alloys that can be brazed at high temperature. It has corrosion resistance equal to or better than the aluminum-silicon alloys.

If your heat treating facilities are inadequate or too costly, or if you are paying for outside work, or if you are casting large and complex aluminum shapes which cannot be conveniently heat treated, call Federated for more information on modern Tenzaloy. Any of our 13 plants and 23 sales offices across the country is ready to help.

# Federated Metals

DIVISION OF AMERICAN SMELTING AND REFINING COMPANY  
120 BROADWAY, NEW YORK 5, N. Y.

IN CANADA: FEDERATED METALS CANADA, LTD., TORONTO AND MONTREAL

Aluminum, Anodes, Babbitts, Brass, Bronze, Die Casting Metals, Lead and Lead Products, Magnesium, Solders, Type Metals, Zinc Dust

For More Information Circle No. 292 on Inquiry Card—Page 17



## association news

### Vancouver Ass'n Busy

On November 8th, the Vancouver branch of the PA Association of British Columbia held its regular monthly dinner in the Hotel Vancouver. The scheduled guest speaker was Howard N. Walters, sales manager of the British Columbia Electric Co. and currently president of the Vancouver Board of Trade. The speaker appropriately chose as his subject: "The Web of the Board of Trade." He showed how Boards of Trade derived their origin from century old organizations, the guilds of the 12th century in Europe where merchants got together "to work out a standard of ethics." The first Board of Trade in Canada has a long history for the New World, the Halifax, N.S., Board having been organized in 1750. Canada now has 700 distinct Boards of Trade. Dave Clancey introduced the speaker who is a co-worker of his and Jack Waddell of the National Paper Box Co. thanked him for a most interesting address.

On November 17th, there was a plant visitation which was sufficiently ahead of Christmas so that it did not interfere with the enjoyment of his Christmas turkey by the most tenderhearted member of our association. They were the guests of the Visco Poultry Products Ltd. plant at 261 Central St., Vancouver and were shown how our barnyard friends are scientifically transmuted into poultry. After partaking of delectable refreshments, members were presented before leaving with a sample of Visco's art to take home.

The month's Educational meeting was held on Tuesday, November 22nd at the Hotel Grosvenor. The theme was "Purchase Orders and Related Forms." It was developed by Bob Baker of Alaska

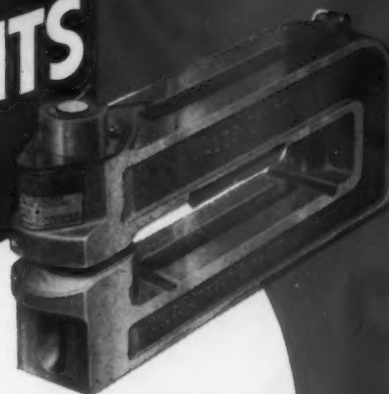
(Please turn to page 212)

For More Information Circle No. 293  
on Inquiry Card—Page 17→

PURCHASING

# WALES hole-punching UNITS

"Boosted our profits, cut time"



"I FOUND THAT OUT; BUT QUICK!"

WALES self contained UNITS are available  
in infinite sizes and styles . . . from stock

"It's a mean rough deal for the small operator to compete, unless he has the know-how and the equipment that can make money competing with Big Shop prices.

"WALES Engineers showed me how simple the WALES UNIT really is. Punches can be removed and replaced in holders in a jiffy! No special tools needed. No aligning necessary. Little or no 'down time'!

"I was struggling with a production run of stainless steel flat pieces 24" x 18", ( $\frac{1}{8}$ ") .125 thick. Had to punch 14 holes and 2 notches in every piece of this hard-to-punch metal. Took the boys something like three quarters of an hour to set up and roll. Then it was hard to time production because of constant inspection of one part or another.



"I found this WALES-WAY a mighty sensible method. Punches and dies are automatically aligned at all times. No production run inspection needed. Punches, stripping guides, springs and guide buttons are not attached to press ram. They are all components of the WALES UNIT. It's all done in minutes — not hours!"

There's a WALES Hole-Punching UNIT made especially for a great many uses. One adjustment of the ram for all sizes and forms as the UNITS have a uniform shut height. Punch from skim stock to  $\frac{3}{4}$ " plate. Use the same UNITS over and over again with different hole punching patterns. There's no dead storage of set-ups and no heavy investment. WALES UNITS may be used for unlimited pattern set-ups, so your shop can really compete in both price and quality . . . and production speed. You'll be sure to increase profits with the WALES-WAY of using self contained UNITS.

**Our Engineering Staff will assist YOU without charge**

Tell us about your production problem. Our Engineers will be happy to help you; without obligation. There's a wealth of interesting case histories for your study. Why not give your shop a 'break' . . . a chance to step up to greater profits.

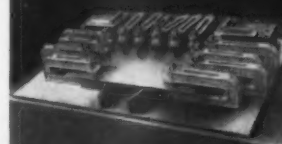


**SEND FOR BULLETIN NO. 19**

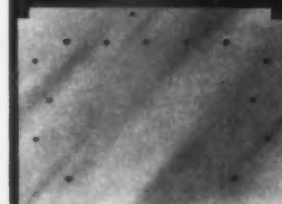
Illustrated with actual job work and full of interesting data and suggestions that you can adopt for your shop.



BL Punching Units and  
NA Notching Units set in  
place on Template.



Punching and Notching  
Units with work piece in  
place.



Finished work pieces show-  
ing 14 punch holes and 2  
notches.

**WALES Strippit CORPORATION**

"...the Wales-Way is the PLUS-PROFIT way"

**345 PAYNE AVE. — North Tonawanda, N.Y.**

WALES-STRIPPIT OF CANADA LTD., HAMILTON, ONT.



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**there's a  
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For greater production, ease of handling and more efficient over-all operation, select a rugged, lightweight MALL power tool. MALL tools are precision produced to give you smooth, powerful performance and years of dependable, trouble-free operation with minimum maintenance.

And MALL offers every feature you want...any model you need (electric, air or gas)—and high quality MALL power tools are available at practical, low economy prices.

Visit MALL Booth 738, ASTE Show, Chicago International Amphitheatre, March 19-23, 1956.

#### MALL TOOL COMPANY

Portable Power Tools • Gasoline • Electric • Air  
7791 South Chicago Avenue, Chicago 19, Ill.  
Please send your latest Portable Power  
Tool Catalog.

Name \_\_\_\_\_  
Address \_\_\_\_\_

MU-201

For More Information Circle No. 294  
on Inquiry Card—Page 17

## association news

(Continued from page 210)

Pine and Cellulose Co., Ltd., Art Nursey of Marwell Construction Co. Ltd., and Ross Fraser of Mills and Packers Ltd. Basic procedures described by the three speakers seemed to be remarkably similar. A lively discussion followed. On December 1st, our members were invited to visit the new corrugated manufacturing plant of Martin Paper Products Ltd. at New Westminster. They got an educational insight into one aspect of packaging efficiency.

### Party Nite in Buffalo

On Wednesday, December 14th, 1955 the Purchasing Agents Association of Buffalo enjoyed a very excellent Christmas Meeting or Party, would be more descriptive, as all formal business was dispensed with for this meeting.

Cocktails, "on the Association" were enjoyed to the utmost by 125 members, preceding a delicious dinner.

Each member brought a gift which was placed on a very large table. Numbers were then drawn out of a box and the lucky number holders then had first choice of a gift or one of fifteen turkeys donated by the Association. Because of the addition of turkeys as prizes, at least fifteen members of the Association went home that evening with two gifts.

The hat was passed around to each table and the members donated \$125.20 — an amount which was equalled by the Buffalo Association. By polling the members, the Salvation Army and the Buffalo Evening News Good Fellows Club were the charities selected as the recipients of \$125.20 each.

After all gifts were distributed, many of the members enjoyed themselves playing cards and having a few more drinks, "on the Association," of course.

**built for  
LONG, TOUGH  
service**

**PHILLIE  
GEAR**



Continuous tooth  
Herringbone Gears

Spiral Bevel Gears



Worm Gears



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GEAR WORKS  
INCORPORATED**

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BALTIMORE • CLEVELAND  
Virginia Gear & Machine Corp., Lynchburg, Va.  
Industrial Gears & Speed Reducers • LimbTorque Valve Controls  
Established 1892

For More Information Circle No. 295  
on Inquiry Card—Page 17  
**PURCHASING**



## "Get prices down! Keep quality up! **BUT HOW?**"

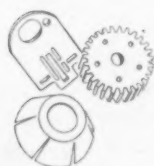
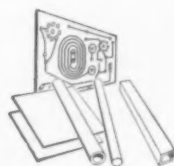
Purchasing Agents do it through creative, analytical buying—coupled with the help they have a right to expect from progressive suppliers.

If your company works with *basic engineering materials*, call on National. Here's a company offering an exceptionally broad line of materials, backed up by research facilities and production know-how you need to support your decisions.

NVF materials—Vulcanized Fibre, Phenolite Laminated Plastic, Metal-Clad Phenolite and Fibre, Peerless Insulation—are surprisingly adaptable. Each is manufactured in many forms, grades, and combinations, with various degrees of hardness, resilience, flexibility, insulating ability, dielectric strength, moisture resistance, and ease of fabrication. What they can do—to reduce costs and preserve product quality—has raised many a manufacturer's eyebrows *and profits!*

NVF maintains complete facilities for machining and forming ready-to-use parts. This saves you operating steps and gives you 100% usable parts. Working with a single integrated supplier often turns red figures into black ones.

If you buy basic materials—let an NVF engineer show you how he can help you maintain high quality at lower unit costs. And if you want to slash handling costs, look over National's line of materials handling receptacles—made of lightweight, sturdy, long lasting Vulcanized Fibre.



For basic materials, write for  
General Catalog. For  
Receptacles, write for Catalog  
HVF. Address Dept. B-2.



**NATIONAL**  
**VULCANIZED FIBRE CO.**  
WILMINGTON 99, DELAWARE

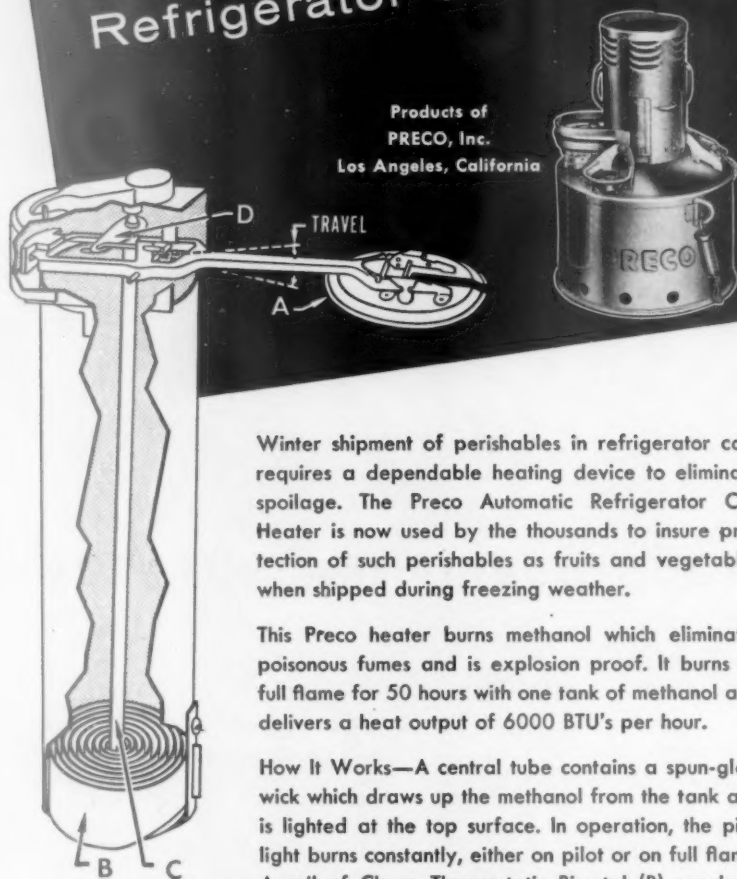
In Canada: National Fibre Company of Canada, Ltd. • Toronto 3, Ont.

Also Manufacturers of Peerless Insulation, Materials Handling Receptacles, Vul-Cot Wastebaskets and Textile Bobbins.

For More Information Circle No. 296 on Inquiry Card—Page 17

# How Chace Thermostatic Bimetal Controls the **PRECO** Refrigerator Car Heater

Products of  
**PRECO, Inc.**  
Los Angeles, California



Winter shipment of perishables in refrigerator cars requires a dependable heating device to eliminate spoilage. The Preco Automatic Refrigerator Car Heater is now used by the thousands to insure protection of such perishables as fruits and vegetables when shipped during freezing weather.

This Preco heater burns methanol which eliminates poisonous fumes and is explosion proof. It burns on full flame for 50 hours with one tank of methanol and delivers a heat output of 6000 BTU's per hour.

**How It Works**—A central tube contains a spun-glass wick which draws up the methanol from the tank and is lighted at the top surface. In operation, the pilot light burns constantly, either on pilot or on full flame.

A coil of Chace Thermostatic Bimetal (B) regulates the degree of combustion by controlling the amount of oxygen admitted to the wick, according to the temperature in the car. The bimetal coil, with one end fixed to the housing and the other to the shaft (C), reacts to temperature change by rotating the shaft with lever (D) attached, lifting or lowering the snuffer arm and plate (A) over the flame. Thus, the amount of oxygen available for combustion is varied to produce a greater or lesser degree of heat.

Chace Thermostatic Bimetal is available in 29 types, in strip, coils or in complete elements made to your specifications. Write now for our free 36-page booklet, "Successful Applications of Thermostatic Bimetal," containing valuable information for designers of thermally responsive devices.



**W. M. CHACE CO.**  
**Thermostatic Bimetal**  
1635 BEARD AVE., DETROIT 9, MICH.

For More Information Circle No. 297 on Inquiry Card—Page 17

## association news

### President Soell Addresses Carolinas-Virginia Ass'n

The annual meeting of the Carolinas - Virginia Purchasing Agents Association was held on Friday, December 2nd and Saturday December 3rd at The Carolina, Pinehurst, N.C. A full program had been arranged. The 10 A.M. Friday meeting, with L. B. Whitehouse presiding, was a closed session for receiving various committee reports and election of officers for 1956. The open meeting held at 2:00 P.M. was honored with the presence of A. W. (Al) Soell, president of N.A.P.A., and director of purchases, Gaylord Container Corp., St. Louis, Mo. He delivered an inspired keynote address for the meeting on "Purchasing in the Modern Economy."

The theme discussed at the Sales Executives Panel at 2:54 P.M. was "Purchasing Policies and Procedures From the Viewpoint of the Sales Executive." W. F. P. Cox was in the chair. The Educational Program at 4:00 P. M., with F. B. Pinson, Jr., presiding, had its discussion revolving around: "It's Your Decision." Festivities of the evening started with a social hour from 6:30 P.M. to 7:45 P.M., followed by a banquet at 8:30 P.M. with president L. B. Whitehouse as toastmaster. At the banquet, the Thomas Award was presented by W. G. Thomas. The evening ended with the Ladies' Night and Pre-Christmas Ball held in the Ball Room of the Carolina Hotel.

On Saturday, December 3rd, an open meeting was held at 9:30 A.M. An address on "Education, Public Relations and Standardization" was given by Wilson B. Wright, v.p., District Eight, N.A. P.A., and ass't purchasing agent, Bausch & Lomb Optical Co., Rochester, N.Y. The two-day session ended with a closed forum

(Please turn to page 216)



# METAL TO METAL FASTENINGS STAY TIGHTER WITH TENSION



## RELIANCE SPRING LOCK WASHERS

Metal products assembled by the tried and true nut/bolt method need more than just tight fastenings at the end of the production line. This especially is true of products subject to movement, vibration, stresses and strains. Metal wears, bolts stretch; and a fastening can become loose even though the nut doesn't turn. One solution to this problem is the application of constant tension to the assembly supplied by Reliance Helical Coil Spring Lock Washers.

These are the same high quality Spring Lock Washers on which the metal working industry has depended for forty-two years. They are made of cold drawn spring steel and are quality controlled throughout the manufacturing operation. For the complete story, write for your free copy of Reliance Engineering Bulletin W-50.



# EATON

**RELIANCE DIVISION**  
**MANUFACTURING COMPANY**  
513 CHARLES AVENUE • MASSILLON, OHIO

SALES OFFICES: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Montreal



**PRODUCTS:** Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings • Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

For More Information Circle No. 298 on Inquiry Card—Page 17

FEBRUARY, 1956

215



**this truck**



**this terminal**



**this control room**



**this routing guide**



**are at  
your service**

**... all key phases of SPECTOR'S**

*Customized*

## **FREIGHT TRANSPORTATION SERVICE**

Today's purchasing agent knows the importance of efficient, engineered transportation in controlling the cost and flow of materials used in his plant. His increasing reliance upon motor transportation over the past decade attests to its many comparative advantages—its flexibility, its speed, its versatility, its economy.

Serving more than 5000 industrial and commercial points in 37 states, Spector enables the progressive purchasing agent to broaden his list of sources, reduce over-all inventories and capital investment, coordinate his inbound materials with the distribution of plant output.

Get the facts from your traffic manager or your nearest Spector representative.

A U.S. Custom Bonded Common Carrier



**SPECTOR FREIGHT SYSTEM, INC.**

General Offices: 3100 S. Wolcott Avenue, Chicago 8

**TERMINALS IN:**

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Decatur • Indianapolis • Milwaukee • Newark • New  
Britain • New York • Peoria • Philadelphia • Providence  
St. Louis • Springfield (Mass.) • Worcester

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## association news

(Continued from page 214)

panel from 10:00 A.M. to 11:30 A.M. with v.p. Paisley Boney as moderator. Leaders in the discussions were as follows: Mill Supplies, Harold P. Tuttle, Rocky Mountain Mills; Fuel, Homer D. Waters, Mill Power Supply Co.; Furniture & Lumber, Sam W. Freeman, Drexel Furniture Co.; Governmental & Institutional, Reuben H. Graham, Jr., N. C. Baptist Hospitals, Inc.; Papers & Containers, George F. Ingold, Henley Paper Co.; Purchasing Procedures, H. B. Whitworth, Champion Paper & Fiber Co.; Textiles, Clyde M. Andrews, Blue Bell, Inc.; Utilities, Thomas J. Garrett, Jr., Mill Power Supply.

### **Products of Industry Exhibit in Milwaukee**

The eighth Products of Industry Exhibit, sponsored by the Milwaukee Association of Purchasing Agents will be held in the Milwaukee Auditorium, November 6, 7 & 8, 1956. The theme of the 1956 show will be "Preview of Industry's Newest." The purpose of this annual exhibit is to bring industrial products and new developments before large numbers of potential buyers and users.

The annual Ladies Night, held on Tuesday, November 8th, at the Elks Club was well attended by over 300 members, wives and friends. After dinner, the group was addressed by Irv Vermont, Boston, the wizard in thought retention. Some of his mnemonic feats, demonstrated at the meeting, were astounding, such as naming approximately 150 people, introduced a couple of minutes before.

On November 15th, association members made a visitation to the American Motors plant at Kenosha, Wis. They saw the new

(Please turn to page 218)

For More Information Circle No. 300  
on Inquiry Card—Page 17→  
**PURCHASING**



Wanted:  
Compressible painter  
to work inside  
a 6-inch pipeline!

TODAY, this improbable plea is answered by an unusual combination. A revolutionary process puts a coating of Epon® resin enamel inside a pipe line that is *already in the ground!*

Epon resin liner stops corrosion in a pipe line carrying crude oil, salt water or natural gas, and so prevents product contamination by rust or scale. It greatly increases the useful life of a pipe line. This means great saving of time and dollars for

pipe line operators. Smooth and durable Epon resin coating sticks to steel pipe wall with a tenacity never before attained without baking.

Use of Epon resin in pipe line paint is but one application of a Shell Chemical product in the field of industrial transportation.

Shell Chemical Corporation

Chemical Partner of Industry and Agriculture

NEW YORK







**ELIMINATE  
THIS  
DANGER ZONE!**

You can eliminate this danger zone under any hoist, crane, or other lifting equipment with Bullard-Burnham safety hooks. A pushbutton safety gate makes it impossible for loads to jar loose until the hook is manually unlocked, and also acts as a constant safety gauge indicating whether or not the hook is sprung. Notice that the safety gate leaves the hook's throat 100% clear. The heavy duty safety gate is non-corrosive brass with a stainless steel lock pin that will last for years.

E. D. Bullard Company, 275 Eighth St., San Francisco



Hook  
on load block

Hook with jaw  
and jaw-type ball  
for link chain

Hook with  
adapter nut for all  
types of pullers

Write for complete data and specifications



# BULLARD

For More Information Circle No. 301 on Inquiry Card—Page 17

## association news

(Continued from page 216)

Nash and Hudson automobiles come down the assembly lines. Afterwards, a dinner was held at the Elks Club. James Eland, U.S. Treasury Dept. was the guest speaker. He spoke on "Taxes as They Affect the Purchasing Function."

### Georgia Ass'n Meets

The members of the Georgia Association of Purchasing Agents and their wives, about one hundred strong, gathered at the Druid Hills Country Club for their annual Christmas affair, on December 13th. As is befitting for the occasion, this evening was taken over mostly by fellowship in the spirit of the coming holidays. The occasion did not pass, however, without our initiating a couple of new members into our Association and we have now reached an all time high of 116 members. Gifts were distributed to all present and the general feeling of friendship will surely help us further our more serious work during the coming year.

### R.I. Purchasing Agents Get Together For Xmas

The Christmas Meeting of the Rhode Island Purchasing Agents' Association at the Sheraton-Biltmore Hotel, on Friday, December 9th, began with a free cocktail party at 6:30 P. M. Dinner followed, and the members were given their choice of menu, either swordfish or roast beef. There were gifts in abundance supplied by the members. A sparkling entertainment had been arranged by the Christmas Meeting Committee, under the chairmanship of Joseph Navas and ably supported by Eugene E. Collins, Walter S. Gray, William F. Miller, Warren A. Ray and David E. Ringland.

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PURCHASING

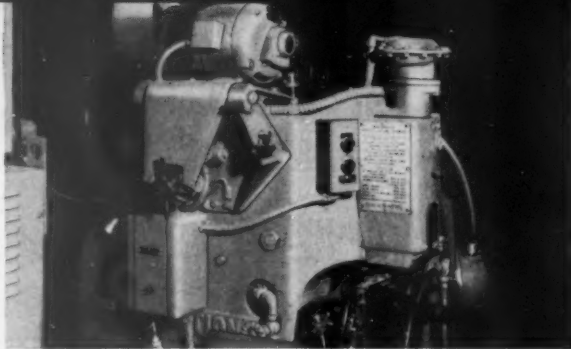
Where to use

# 3 KINDS OF G-E MAGNETIC STARTERS

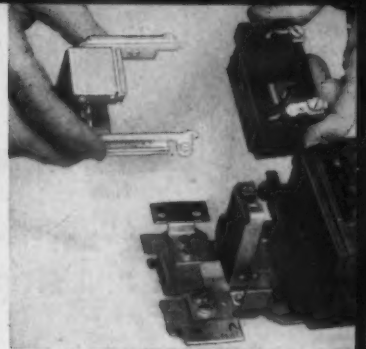
and why . . .

**NON-REVERSING STARTERS**—for all full-voltage, single-speed motor applications

When remote control is desired, or when motors are started and stopped frequently—such as on machine tools, compressors, blowers, or similar equipment—use G-E magnetic starters. The strong box coil is layer-wound with insulated wire, and impregnated with a solventless varnish. The windings are enclosed in a molded case which keeps out moisture and oil, and helps protect against accidental damage.



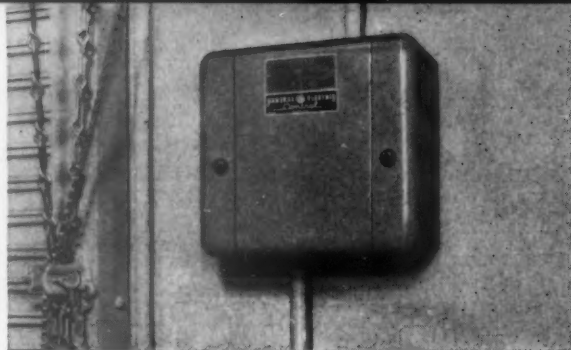
NON-REVERSING STARTER ON WELDER



STRONGBOX COIL

**REVERSING STARTERS**—for control of motors which rotate in both directions

To control motors which reverse direction—on hoists, door openers, and planers, for example—select G-E reversing starters. They consist of two separate starters in a single case, with an interference-type mechanical interlock which prevents short circuits caused by one starter closing before the other starter opens the circuit. Extra electrical interlocks are also available.



REVERSING STARTER ON OVERHEAD DOORS

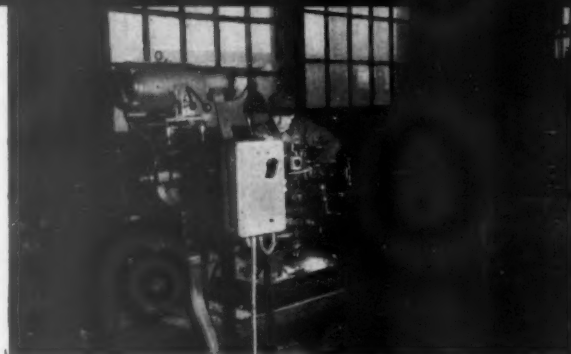


MECHANICAL INTERLOCK

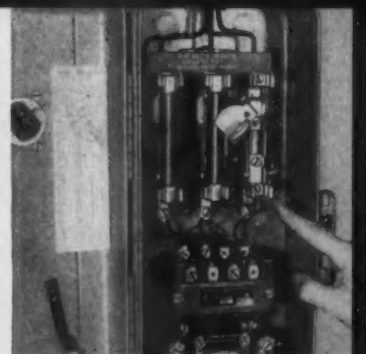
**COMBINATION STARTERS**—for starter and short-circuit protection in one unit

G-E combination starters—which come in both reversing and non-reversing forms—have the extra feature of a disconnect switch or circuit breaker for short-circuit protection and manually disconnecting the motor from the line. Interchangeable fuse clips provide maximum flexibility, enable you to adapt your starter to new circuit conditions.

733-5



COMBINATION STARTER ON TURRET LATHE



DISCONNECT SWITCH

**FOR ANY APPLICATION**—specify General Electric for best quality, most reliability

For further information write for bulletin GEC-1260, or contact your nearest General Electric Apparatus Sales Office or Distributor

# GENERAL ELECTRIC

BLOOMINGTON, ILLINOIS

# ✓ WIRE Construction SAVES STEEL!

Some suggestions for those facing  
sheet and strip steel shortages:

1

Consider this: wire is available in volume right now. It will continue to be available.

2

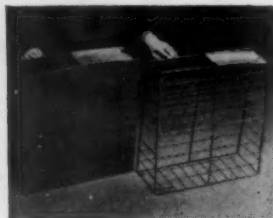
Perhaps your sheet and strip products can be redesigned in wire. We will help you find out.

3

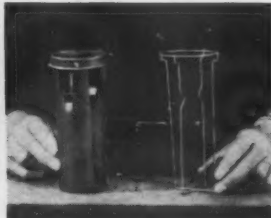
Start *now*. Redesigning takes time, and the shortage will get worse before it gets better. Send samples or drawings, or use the coupon. The pictures below show the kind of job we have done for others.



93 Tons of Strip Saved! We aren't allowed to show this wire assembly, but throughout 4 years production wire has always been available, and has saved 186,000 lbs. of strip.



"Skeletonizing" does it! Wire design replaced sheet steel box, eliminating useless metal, cutting costs, providing greater rigidity.



Not only steel, but other metals, too! Stainless steel wire assembly replaced expensive copper blanking. Critical material completely eliminated.



E. H. TITCHENER & CO.  
92 Clinton Street, Binghamton, N. Y.

Send me the facts. I'd like to see your technical literature showing how it's done and what the results have been.

Name.....

Company.....

Address.....

City.....State.....

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## association news

### Twin City PAs Learn More About Steel

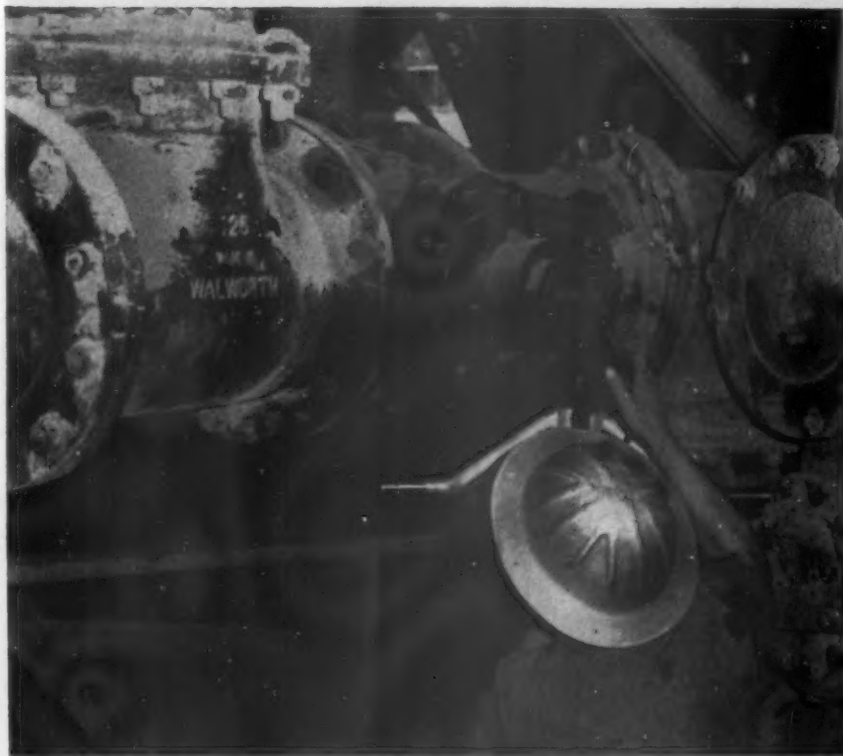
The December meeting and Christmas Party of the Twin City Association of Purchasing Agents was held at the Calhoun Beach Hotel, on Wednesday, December 14th. A pre-dinner meeting huddle concerning "Steel" was moderated by Wayne Hamlett. Dinner was served at 7:00 P.M. in the Skyline Room accompanied by gay dinner music. Afterwards, a new film on Minnesota's tacomite industry, "Iron Ore Unlimited," was shown with Mr. Dreng Bjornaraa, of the U. S. Steel Corp., furnishing pertinent running comment.

### Toledo Ass'n Celebrates Xmas With Bang-Up Party

Saturday evening, December 17th, saw a gala party at the Toledo Yacht Club, when members of the Toledo Purchasing Agents' Association foregathered with their ladies to hold the annual Christmas Party. Under the chairmanship of Russ Mayer and his committee members, Bob Hecker and Max Thayer, a wonderful evening of entertainment had been arranged. It started off with a cocktail party, compliments of the association, at 7 o'clock. At 7:45 a filet mignon dinner with all the trimmings was served, followed by dancing to the rhythmic music of Freddie Paxton and his Detroit Society orchestra. There were gifts galore for the ladies.

December, however, was not wholly an occasion for festivity for members of the association. Jim Raifsnnyder, plant visitation chairman, arranged with Russ Mayer for members to visit the plant of E. W. Bliss Co., at 7:00 P.M. on Wednesday, the 14th. After a tour of the plant, there was a short film on automated presses. The visitation ended with a buffet luncheon at 9:00 P.M.





**CEMENT:** Lubricating a Walworth Lubricated Plug Valve in a West Coast cement plant.



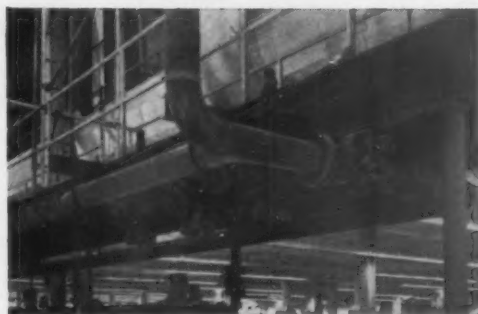
**BEVERAGE:** A battery of Walworth Bronze Lubricated Plug Valves installed in the blending department of a distillery.



**PAINT:** Eighteen Walworth Lubricated Plug Valves in a common manifold installation in the varnish division of a midwestern paint and varnish works.

*serving almost any industry you can name . . .*

## WALWORTH LUBRICATED PLUG VALVES



**FOOD:** Walworth Lubricated Plug Valves are included in the piping arrangement in this large midwestern bakery.



**PUBLIC UTILITY:** Straight-way and three-way Walworth Lubricated Plug Valves installed in a modern West Coast sewage disposal plant.

At one time Walworth Lubricated Plug Valves were considered a "specialty item". Here are some of the features that have led to their employment in a wide range of industries as high quality 'all-purpose' valves:

(1) There are no threaded stems or complicated seating mechanisms. (2) Because the plug is always seated in the body, solid matter, which might be in the line contents, cannot wedge between the seating surfaces and prevent a tight closure. (3) The position of the wrench handle, or the marking on the plug shank, or the stop collar, clearly indicate the position of the plug. The operator can see from a considerable distance whether the valve is open or closed. (4) Quick opening and closing of the valve is assured by only a quarter turn of the plug. (5) Lubricant can be renewed while the valve is in service.

Walworth manufactures complete lines of Lubricated Plug Valves in a variety of types and materials for working pressures up to 5000 psi and for vacuum services. Sizes range from ½ to 30 inches.

See your Walworth Distributor or write to Walworth for complete information.

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valves . . . pipe fittings . . . pipe wrenches  
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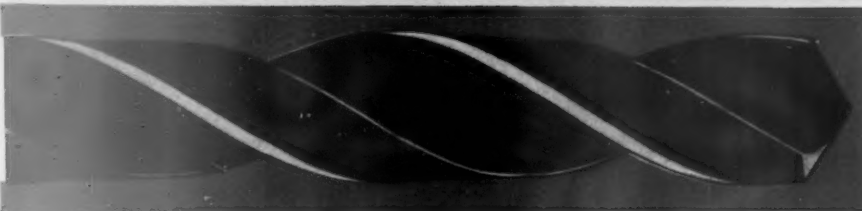
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For More Information Circle No. 304 on Inquiry Card—Page 17

# Chicago Latrobe

## High Speed Drills



THE QUALITY THAT DELIVERS

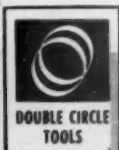
### greater cutting mileage!

SERVICE YOU CAN COUNT ON TO

### eliminate down time!

Virtually all high-speed drilling jobs can be done by an in-stock Chicago-Latrobe Drill. So whatever your needs—look to Chicago-Latrobe. You'll find their line is complete, their quality tops, and their service unexcelled.

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DRILLS • REAMERS  
COUNTERSINKS • COUNTERBORES  
CARBIDE TOOLS • SPECIAL TOOLS

For More Information Circle No. 305 on Inquiry Card—Page 17

## association news

### New England Xmas Meet

The Christmas meeting of the New England Purchasing Agents Association, held on Monday, December 12th, at the Bradford Hotel, Boston, displayed some of the spirit of cheerful hospitality for which it is famous. It realistically solved the perplexing guest problem and the more perplexing gift problem. Each member could bring guests to the meeting to share in his Yuletide joy but the number was limited to two. There were gifts at the meeting but they were purchased by the Association and the committee. The members were asked not to send in gifts. Festivities began at 5:30 P.M. with a social hour in the Empire Room, followed by a roast beef dinner and entertainment in the Ballroom, beginning at 7:00 P.M. Bill Kendrick and his committee masterly arranged everything.

### Utility Buyers Plan Mid-Winter Conference

The theme of the mid-winter conference of the Public Utility Buyers' Group of N.A.P.A. to be held at the Edgewater Beach Hotel in Chicago on February 5, 6, and 7 will be: "Twenty Five Years of Purchasing Progress." It is intended to review price trends and policies starting twenty-five years back, right up-to-date, next take a look at today's policies, then at the future. There will be a panel discussion concerning price policies, with four major companies represented along with one or two members of the Utility Buyers' group. The local arrangements committee is headed by R. B. Gear, director of purchases, Commonwealth Edison Co., Chicago.

Officers of the Public Utility Buyers Group for 1955-56 are:

(Please turn to page 224)

**For Quick and  
Easy Cutting**



# SIMONDS "Red End" HACKSAW BLADES



All hands are top  
hands with a  
"Red End" Blade.

**For Fast Service  
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There is a difference in hacksaw blades. A quality blade cuts faster, easier, straighter . . . gives more cuts per blade. That's why those who know, insist on Simonds "Red End" — the blade that's famous for quality.

Tough electric furnace steel, accurately milled and precision set teeth, scientific heat treatment and close production control are combined in these blades to give sharper, faster, longer lasting cut-ability to every blade. What's more, you have a choice of three types of blades for lowest cost and best results on different jobs: STANDARD STEEL for general purpose use; HIGH SPEED MOLYBDENUM for longer wear and greater resistance to breakage; HIGH SPEED TUNGSTEN for best results in cutting tough alloy steels. All blades come in 10 and 12 inch lengths and in standard tooth sizes with a choice of Hard Edge or All Hard. Specify "Red End" and get more for your hacksaw dollar.

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## association news

(Continued from page 222)

Chairman: R. F. Isenhardt, Dayton Power & Light Co.; First Vice-Chairman: L. G. Wiseley, Michigan Consolidated Gas Co.; Vice-Chairmen: H. T. Belcher, Consumers Power Co., and R. H. Sperring, Union Electric Co. of Missouri; Sec.-Treasurer: James J. Morse, New Orleans Public Service, Inc.

### Evansville Association Formed

At a charter dinner meeting recently at the Hotel McCurdy in Evansville, Ind., formation of an Evansville Association of Purchasing was announced.

Named as temporary officers of the group are: president, Charles Schrader, purchasing agent for Potter & Brumfield Co. of Princeton; vice-president Richard S. Ferguson, of Faultless Caster Corp., and secretary-treasurer, O. V. Herrell, of Mead Johnson & Co. Publicity director is W. A. Smith, director of purchases at Servel, and education director, William T. Perkins of General Electric Co., Owensboro.

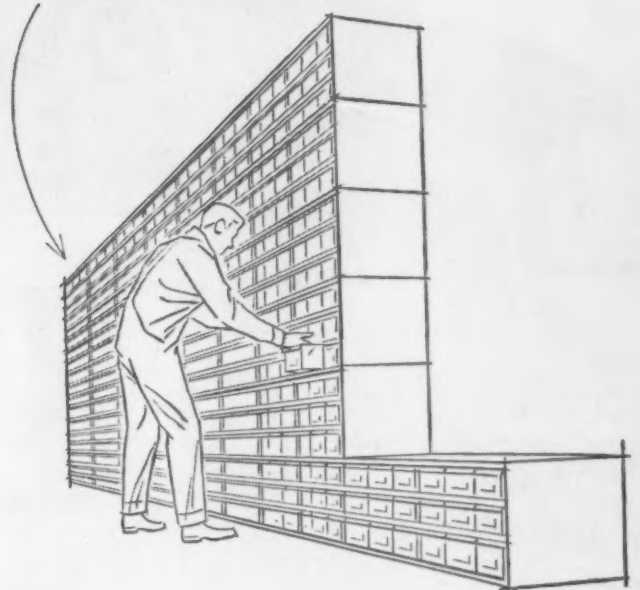
At least one representative from each leading industry in the Tri-State will be the goal of the organization which is starting out of a nucleus of 19 members.

Besides officers named those who attended a recent organizational meeting are: A. R. Shrawder, Shane Manufacturing Co.; James E. Young, Roy F. Sheets, and Erwin F. Schmidt, all of Servel, Inc.; Elmer Will and Fred Walz, International Steel Co.; Herbert E. Troyer, Bernardin Bottle Cap Co.; Everett Cox, Potter & Brumfield, Princeton; R. A. Brent, General Electric Co., Owensboro, Ky.; Lou Ell, General Electric Co., Tell City; A. C. Voelkel, Charles Ligon and W. A. Gallmeister, all of Mead Johnson & Co.; and William Brooks, Kent Plastics.

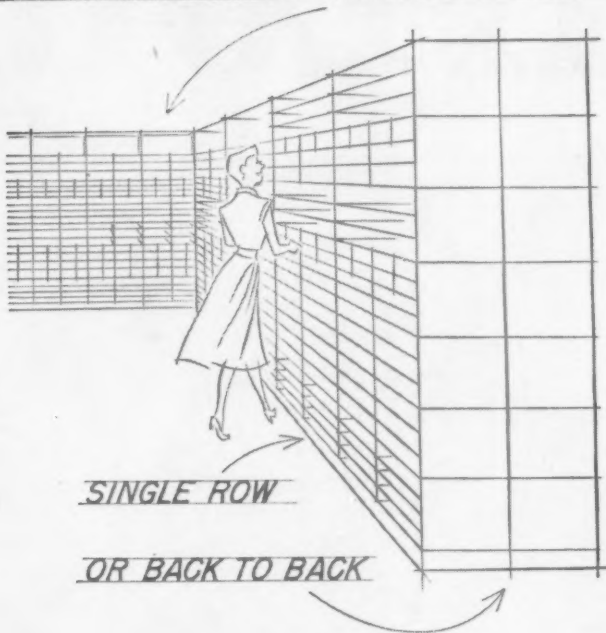
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STACK THEM AGAINST WALLS  
-AS HIGH AS YOU WANT-  
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USE THEM TO BUILD PARTITIONS OR WALLS



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SET THEM UP ADJACENT TO MACHINES AND OTHER  
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For More Information Circle No. 308 on Inquiry Card—Page 17  
FEBRUARY, 1956

For More Information Circle No. 309 on Inquiry Card—Page 17→



# TAYLOR

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Welding nozzles



T.E.M.A. flanges and channels



Multiple outlet headers



Production forgings



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Large diameter electric weld pipe



Welding necks





Engineered for accuracy and precision...


Designed for greatest strength...

Built for maximum service...

*to make any good piping job BETTER*

# FORGE

Welding Fittings  
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Forged Flanges



By any method of value analysis . . . by any measurement of quality . . . by any standard of comparison . . . you can't buy finer products than those made by Taylor Forge. The line, truly complete, includes WeldELLS and all other welding fittings of any thickness, many in sizes through 42" O.D.; forged and rolled flanges of any required diameter and pressure rating; multiple outlet headers; venturi type reducers, hot tap tees; anchor flanges; in fact, just about everything you need to simplify piping construction and speed up the job.

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"traditionally dependable."

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Plants at: Carnegie, Pa.; Gary, Ind.; Houston, Texas; Fontana, Calif.;  
Hamilton, Ont., Canada.

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Tulsa, Los Angeles, San Francisco, Toronto, Calgary.

### For the best of service call your Taylor Forge Distributor

He carries a full stock of Taylor Forge Welding Fittings and Forged Flanges and can supply your needs promptly. He's a good man to know for he understands piping and through him you have available the services of Taylor Forge engineers for help and advice on any piping problems.



# purchasing people

in the news

**Ernest D. Snoyer** has been named director of purchases of Panellit, Inc., Skokie, Ill., maker of control instrumentation systems. He was formerly procurement manager at the Rust Engineering Company's Oak Ridge, Tenn., projects.

The appointment of **Ray A. Hulce** as general purchasing agent of the Lincoln Division has been announced by Ford Motor Co., Dearborn, Mich. Mr. Hulce has been with Ford since 1948. He was assistant to the purchasing agent of the former Lincoln-Mercury Division before transferring to the Continental Division, where he served as assistant to the general manager and later as purchasing agent. In 1955, he was named purchasing representative of the Lincoln Division.



R. A. Hulce

The Whitlock Mfg. Co., Hartford, Conn., has named **R. J. Landrigan** as assistant purchasing agent.

**Edward F. Garrigan**, purchasing agent for nearly four years at the Electric Boat Division, General Dynamics Corp., Groton, Conn., has been appointed materials manager. In the newly created post, he will be responsible for purchasing, stores, transportation and inventory control. Taking over Mr. Garrigan's post as purchasing agent is **Lindsay A. Fowler**. Mr. Garrigan, who joined Electric Boat as assistant purchasing agent in 1951, had been with the corporation's Elco Division, maker of pleasure craft and PT boats, for 25 years. He had been the chief engineer and purchasing agent of that plant since 1946.



E. F. Garrigan

**Anthony G. Polidoro** has been named purchasing agent for the phenolic products section of General Electric Co., Pittsfield, Mass. Mr. Polidoro has been with GE since 1928, beginning his employment as a payroll clerk in appliance and merchandise. After serving as a supervisor of order and stores in the Chemical Materials Department, he became a buyer in the phenolic products section. He is a member of the N.A.P.A.

**Robert H. Hauser** is now director of purchasing for Farnsworth Electronics Co., Fort Wayne, Ind. Mr. Hauser joined Farnsworth in 1943 as a technician. He eventually became a specifications writer, and subsequently held the posts of assistant buyer, buyer, assistant purchasing agent, and purchasing agent.



R. H. Hauser



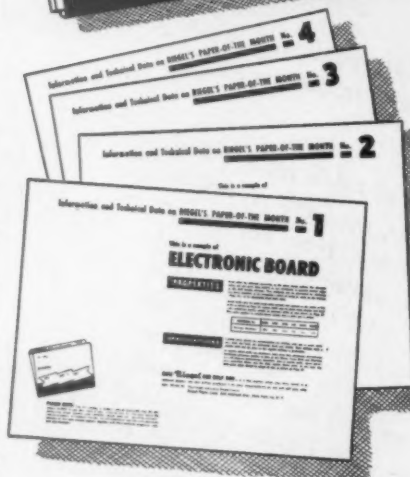
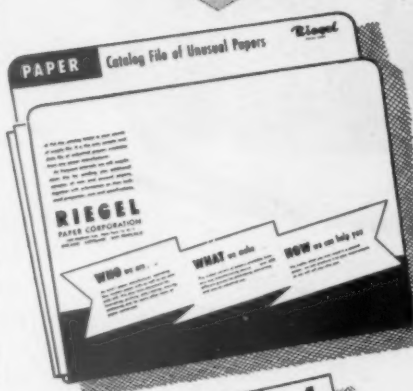
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### makes paper for SOUTH POLE SNACKS

Through equatorial heat to the intense cold of 50 degrees below zero, the good eating qualities of trail rations for Admiral Richard E. Byrd's Task Force will be protected for periods up to two years or more by Riegel's Pouchpak\*...a special polyethylene-coated pouch paper laminated to aluminum foil. Here's another example of Riegel research in unusual paper contributing to industrial progress. Have you a problem that can be solved better with paper? Write to Riegel Paper Corp., P.O. Box 250, New York 16, N. Y. \*TM

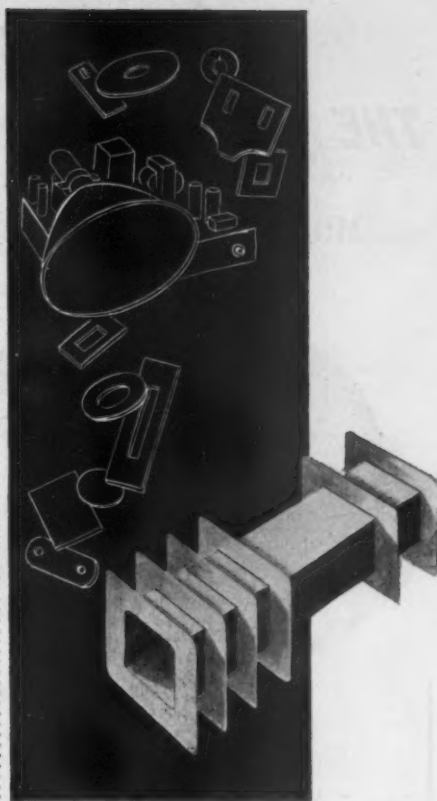
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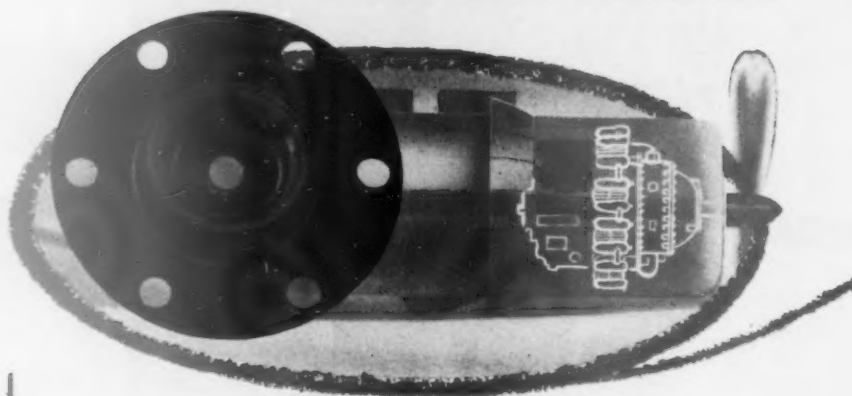
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NYLON

MOLDED NYLON INCREASES LIFE  
... OF CARBURETOR DIAPHRAGM



## APPLICATION:

Aircraft carburetor diaphragm molded for a nationally known aviation firm.

## PROBLEM:

Nylon from customer's approved suppliers would not mold, therefore, holding up further development on diaphragm.

## SOLUTION:

Acushnet chemists tested many types of nylon fabrics and in co-operation with the nylon supplier, used the results as a guide for a new fabric specification. New techniques were developed by the Acushnet laboratories to prevent pleating of the nylon. A special Acushnet compound molded to one side of the nylon proved successful in resisting the specified iso-octane and aromatic fuels. All dimensions were held to  $\pm .003$ " without increasing the rejection rate. To further insure its life span, the bolt flange was molded of double coated neoprene on cotton which provided for greater strength and tear resistance.

Let Acushnet be responsible for producing your next molded rubber diaphragm. The complete facilities for creating special compounds and working with new fabrics assure precision diaphragms of all types and sizes.

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What's Your Shape?

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... Precision Molded RUBBER, SILICONES - "APCOTITE" BONDING

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For More Information Circle No. 314 on Inquiry Card—Page 17

purchasing  
people

The new purchasing agent of Rigidized Metals Corp., Buffalo, N. Y., is **Richard Sampson**. He has been with the firm since 1947, serving in the mill office and sales department prior to his new position.

The appointment of **Herman B. Block** as assistant to the executive vice president for procurement has been announced by Merritt-Chapman & Scott Corp., New



H. B. Block



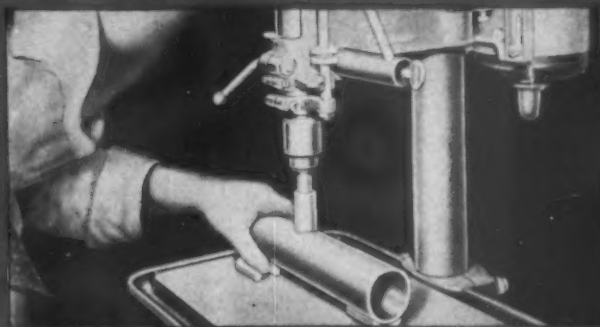
O. P. Moss

York. Mr. Block had been director of purchases for Devoe & Reynolds Co., Inc., Louisville, a division of M-C&S Chemical, Paint and Metallurgical Department. He is succeeded in that post by **O. P. Moss**, former assistant director of purchasing.

**J. F. Estill**, purchasing agent of the Houston Lighting and Power Co., will lead the discussion of purchasing policies and practices at the Fourth Annual Executive Development course sponsored by the A. & M. College of Texas, January 29th to February 18th.

**F. D. Lortscher** has been elected to the board of directors of Signal Oil and Gas Co., Los Angeles. At present he is manager of purchases and stores. He has served with Signal Oil for 28 years in various capacities. He was president of the Los Angeles Association of Purchasing Agents for 1952-53. He also has served as national chairman of the Oil Buyers' Group of N.A.P.A.

# Starrett announces NEW SAFE-FLEX® high speed-welded edge HOLE SAWS



A typical application—cutting hole in pipe.

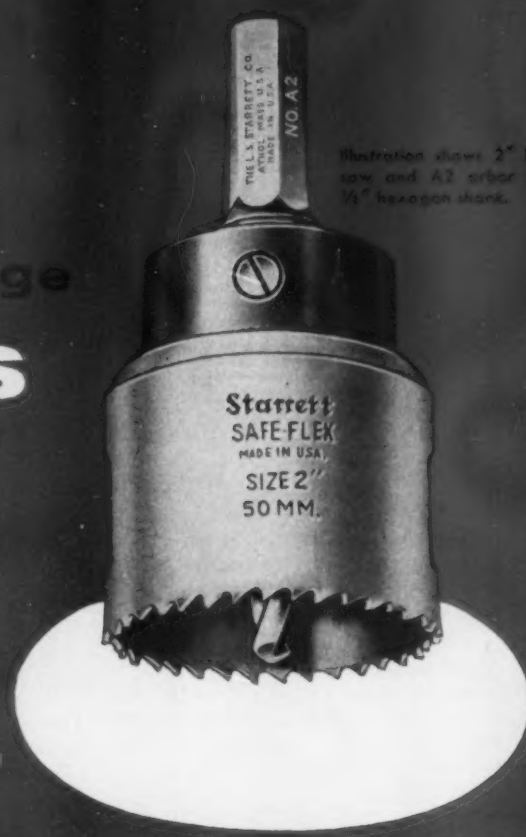


Illustration shows 2" hole saw and A2 arbor with 1/4" hexagon shank.

## DOUBLE-WELDED

Shatterproof, double-welded construction — identical with the same advanced design used in Starrett SAFE-FLEX Hacksaws — makes these hole saws the safest, fastest-cutting, most durable hole saws you've ever sold. They're double welded to combine an extra tough, shatterproof body with a high speed steel cutting edge — a combination that is practically unbreakable and defies tooth stripping.

Available in a wide range of sizes from 5/8" through 4 1/2" diameter to cut clean round holes in any machinable material including steel, brass, bronze, cast iron, aluminum, wood, plastics or sheet metal, as well as cast iron or steel pipe. Can be used with portable power tools, lathes, drill presses, radial drills, etc.

These new Starrett Hole Saws are an important addition to the complete line of Starrett Hacksaws, Band Saws and Band Knives. The complete line is described in new Catalog No. 1053. Write for free copy. Address Dept. P.



Showing hole saw removed from arbor.

## INTERCHANGEABLE ARBORS

A wide range of saws fit four interchangeable arbors which include a 1/4" high speed pilot drill. Arbors are available with 1/2" and 3/4" hexagon shanks and also a 1/4" round shank. Arbor screws into the saw cap and is locked by two drive pins which provide a positive, flexible drive. A 12" long extension is available for arbors with 1/2" hexagon shank.

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TOOLS AND PRECISION INSTRUMENTS • DIAL INDICATORS • STEEL TAPES  
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For More Information Circle No. 315 on Inquiry Card—Page 17

FEBRUARY, 1956

231

DOLLARS  
WELL  
SPENT

or



HOW TO BUY

A STORAGE  
BATTERY



You have to "know your capacity" when you're buying batteries, too! Correct capacity is simply the right size battery—the right number of Ampere Hours—to do the job.



When the slide rule boys specify a certain capacity—and you're busy comparing brands, quality, price, and the rest—make sure capacities are quoted at the same rate.

For instance, you can't compare 8-hour capacity of one brand against 6-hour capacity of another...



If you're not careful, you'll find you've bought a lot less capacity than you really need.

You know, unless specifically requested, no new battery delivers full capacity until it's broken in. After that, it will deliver rated capacity or better for some time—depending upon battery quality, work cycle, and care.

Competitively priced C & D Slyver-Clad® Batteries break in sooner, last longer, and give you higher residual capacity than any other lead-acid battery on the market. We can show you all the facts, figures, and proof in C & D Bulletins.

But capacity is just part of the story. Life, quality, care, price, ratings—all these are important too. They're all explained in C&D's factual new buyer's guide, "How To Buy Storage Batteries." Write for a copy today.

**C&D BATTERIES, INC.**

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Industrial Batteries Since 1906

SALES AND SERVICE OFFICES  
IN PRINCIPAL CITIES FROM COAST TO COAST

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For More Information on Storage  
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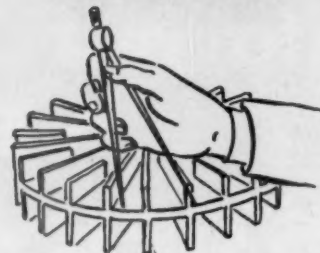
purchasing  
people

The appointment of **Stephen J. Pentrack** as purchasing agent for the materials manufacturing department has been announced by Westinghouse Electric Corp., Pittsburgh. In his new post, Mr. Pentrack will have responsibility for purchasing, shipping, receiving, stores and traffic activities. He will report directly to Warren M. Trigg, manager of the department. Mr. Pentrack joined Westinghouse at East Pittsburgh in 1951, as a priorities supervisor in the purchasing department. In 1952, he became supervisory buyer in charge of capital equipment and tools. Before joining Westinghouse, he was associated with International Harvester as a sales engineer in Pittsburgh.

American-Standard Plumbing and Heating Division, American Radiator and Standard Sanitary Corp., Pittsburgh, has named **William M. Williams** as director of purchases. He succeeds **Richard S. Reade**, who was recently appointed executive vice president of the Ross Heat Exchanger Division.

A series of changes in the purchasing department of the Paint and Brush Division have been announced by Pittsburgh Plate Glass Co. **Walter H. Jones**, formerly purchasing agent for the Ditzler Color Division, Detroit, has been made assistant to the general manager of purchases. Mr. Jones, who has been associated with the company since 1949, succeeds **G. C. Salisbury, Jr. William H. Welch**, purchasing agent for the East Point (Atlanta), Ga., Paint Division since 1953, has been named to succeed Mr. Jones at the Ditzler Division. Mr. Welch started as a buyer with Pittsburgh Paint's Paint Division purchasing department in 1952. **Clyde A. Keefer** has been appointed agent for the East Point unit, succeeding Mr. Welch.

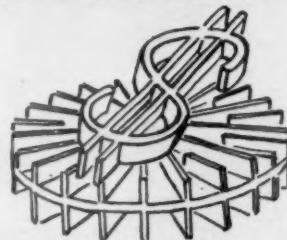
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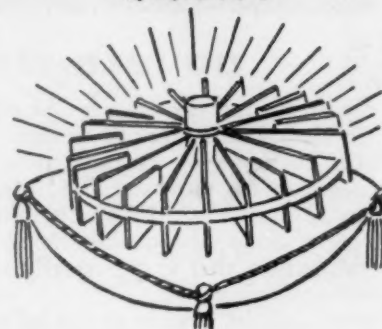
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For More Information Circle No. 318  
on Inquiry Card—Page 17

PURCHASING



# PERFORMANCE VERIFIED / **by acid test**

Even before a Powell Valve is made, it must pass the acid test. For quality control of Powell Valves begins not with manufacture—but with the very materials which go into Powell Valves.

Constant laboratory control is one of the many ways we make certain that Powell Valves will give dependable flow control. Another is the final step of manufacture of these precision-built valves: *every Powell*

*Valve is subjected to an actual line test.*

Because of Powell's painstaking quality control, valve repair is cut to the minimum and plant shut down through valve failure is substantially reduced. Records of performance the world over prove it.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our **COMPLETE quality line** which has **PERFORMANCE VERIFIED**.

**The Wm. Powell Company, Cincinnati 22, Ohio . . . 110th YEAR**



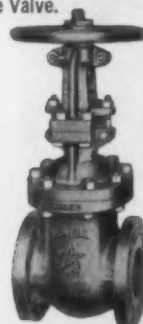
FIG. 241—Iron Body, Bronze Mounted "Model Star" Globe Valve For 125 Pounds W.S.P.



FIG. 560—Bronze Regrinding Horizontal Swing Check Valve For 200 Pounds W.S.P.



FIG. 1503—150-Pound Steel Gate Valve.



# POWELL VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES.

For More Information Circle No. 319 on Inquiry Card—Page 17

# CESCO RIGHT...before your Eyes!



Snap-fast Face Shield  
with deflector crown



Open top  
Snap-fast Face Shield



Helmet-type Face Shield



Full-visibility  
Helmet-type Face Shield



Spark Shield

## NEW! CESCO

### All-Purpose Face Shield for general shop work

The CESCO 770 Face Shield comes in three window lengths of 4", 6" and 8" (top to bottom). The windows mount inside an aluminum channel in a tight assembly impervious to the entrance of dirt or liquid.

The head band of vinyl plastic is adjusted by a sliding strap. There is no metal or mechanical adjustment to snag the hair. The shield conforms easily to the head at all points. Windows are of cellulose-acetate and may be in either green or clear.



Contact your nearest CESCO distributor today or write for complete information and prices.

**Write for complete Catalog**

**CHICAGO EYE SHIELD COMPANY**

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OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Detroit, Houston, Kansas City, Knoxville, Little Rock, Los Angeles, Louisville, Mexico City, D.F., Milwaukee, Montreal, Orange, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Mateo, Spokane, St. Louis, St. Paul, Toledo, Tulsa, Wichita

# CESCO



## FOR SAFETY

## purchasing people

The Texas Co., New York, has announced the election of **Frank M. Dawson**, former manager of the Purchasing Department, as vice president in charge of the Supply and Distribution Department. **Howard S. McCray** succeeds Mr. Dawson as manager of the Purchasing Department. Mr. Dawson joined Texaco in 1928 as a chemist at the Port Arthur, Texas, works. He later became assistant foreman and assistant superintendent of manufacturing there. In 1939 he transferred to New York as assistant to the vice president in charge of the Refining Department, and in 1940 was made assistant superintendent at the Lawrenceville, Ill., refinery. From 1942 to 1945 he was refining manager of an associated company in Buenos Aires. He became superintendent at Lawrenceville in 1945, and was made manager of the Purchasing Department in 1954. Mr. McCray joined the company in 1926. After six years at Port Arthur, he became assistant superintendent at the Port Neches works, and superintendent at the Sunburst works in 1940. Prior to his new assignment, he was operations manager for the Refining Department.

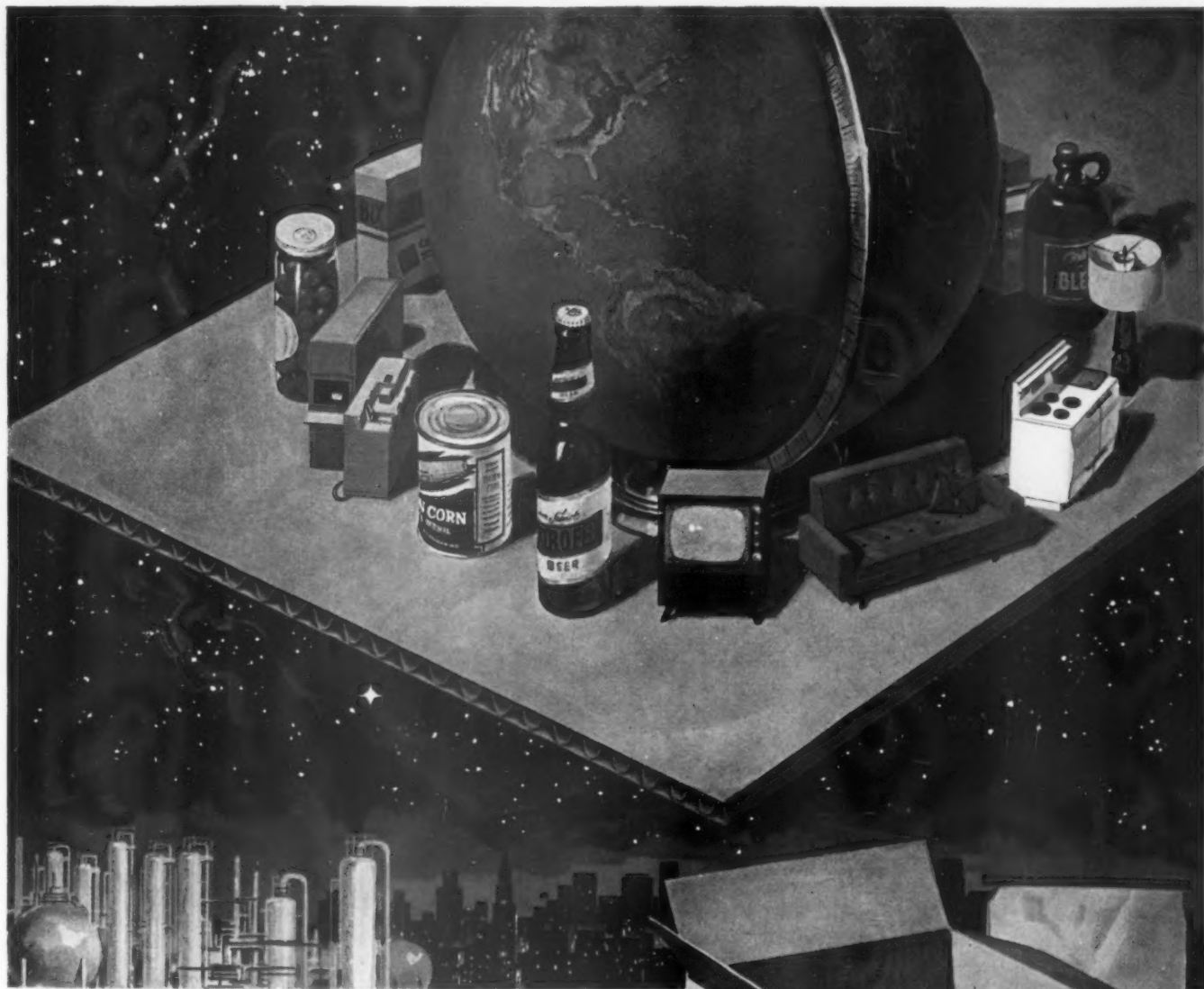
### CORRECTION

In the December issue of **PURCHASING**, it was stated that **Henry G. Greene** has been named purchasing agent of Continental Gin Co., Birmingham, Ala., to succeed Henry G. Davis, who retired after 10 years with the company. Actually, Mr. Davis will have completed 50 years of service with Continental on May 1, 1956. Also, although Mr. Davis has relinquished the heavy burden of purchasing agent, he is remaining with Continental and is still a member of the firm's purchasing department.

For More Information Circle No. 321  
on Inquiry Card—Page 17→

For More Information Circle No. 320 on Inquiry Card—Page 17

*new horizons in* **KRAFT** *packaging —*



WITH TOUGH-TEMPERED  
**FROSTKRAFT**

FROSTKRAFT shipping containers and multiwall sacks are quality products made entirely from virgin fibers of the Southern Pine... the long, tough fibers preferred for maximum strength.

FROSTKRAFT quality typifies the Olin Mathieson Chemical Corporation's sixty years of leadership in cellulose chemistry, long experience in scientific packaging.

The know-how, experience and creative abilities of FROSTKRAFT engineers and designers are at your disposal. Our executives will be happy to help you reach the *right* solution — right away — to your kraft packaging problems.

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PAPER PRODUCTS



FOREST PRODUCTS DIVISION  
OLIN MATHIESON CHEMICAL CORPORATION  
WEST MONROE, LOUISIANA





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 For Any Job!

**Guaranteed for a Full Year**

No matter what your requirements are for Sling Chains, you're sure to find what you need in Campbell's complete line—Cam-Alloy, High Test Steel, or Wrought Iron. And with each Sling Chain you'll enjoy the protection of Campbell's "Guarantee and Certificate of Test."

Every Campbell Sling (including attachments) is proof-tested at the factory to a load in excess of the working load limit and carefully inspected, link-by-link, before shipment.



An identification ring is attached to the master coupling of each Sling Chain with grade, type, reach and register number indicated.

Get complete information on the wide variety of Campbell Sling Chains. Write for your copy of the new Campbell Sling Chain Catalog. It contains specifications, working load limits, and helpful suggestions for use in ordering Campbell Sling Chains.



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*Company*

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West Burlington, Iowa • Portland, Oregon • Sacramento, Calif.  
 Maker of the famous Lug-Reinforced Tire Chains



For More Information Circle No. 322 on Inquiry Card—Page 17

**purchasing  
 people**

**Roland F. Willenbucher** has been named manager of purchases and traffic for National Aniline Division, Allied Chemical & Dye Corp., New York. Mr. Willenbucher, who has been purchasing agent, has been associated with National Aniline since 1928, serving in production, research and accounting positions. He had been in charge of purchasing in New York since 1943.



**H. C. Chaisson**

**Henry C. Chaisson** has been named purchasing agent of the Harder Division, Tyler Refrigeration Corp., Cobleskill, N.Y. Mr. Chaisson has been assistant purchasing agent for the past two years. Prior to that he was associated with the Roger Williams Grocery Co., Providence, and the Union Twist Drill Co.

The Englander Co., Inc., Chicago, has named **Phill Berger** as director of textile purchasing, and **Robert Kupchik** as coordinator of purchasing. Both positions are newly-created. Mr. Berger has been in the Dallas cotton buying office and Chicago headquarter of the company for two years. Mr. Kupchik has more than six years of service with the company. He is a member of N. A. P. A. and the American Institute of Industrial Engineers.

For More Information Circle No. 323 on Inquiry Card—Page 17→

**PURCHASING**



**At Wendel Research & Mfg. Corp.**

## **Shell Dromus Oil E increases tool life 60%, provides better cooling and increased production**

Wendel Research & Mfg. Corp., Albertson, New York, encountered extremely short tool life when drilling A.I.S.I. 4140 steel used in the manufacture of pilot ejection seats. They also experienced broken bits, chip welding, discoloration and burning of the tools. Shell Dromus Oil E was recommended to combat these difficulties. Here are the results:

Dromus Oil E immediately ended Wendel's trouble. The drill and steel bar stock were very cool and easy to handle. Chip settling was excellent, and discoloration of tools and work was completely eliminated.

Here are some of the outstanding features of Dromus Oil E:

1. Excellent wetting and cooling properties—wets all metal surfaces extremely fast.
2. Provides longer tool life—better finish.
3. Not sticky or greasy—keeps tools and work exceptionally cool.
4. Forms a solution, not an emulsion . . . is stable in any concentration.
5. Easy to mix in hot or cold, hard or soft water.

Write for information on Shell Dromus Oil E. See how it can help you increase tool life.

### **SHELL OIL COMPANY**

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100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA



# industry

## developments

To answer increased demands for aluminum alloy sheet in light gauges and narrow widths, **Aluminum Co. of America, Pittsburgh**, is installing a new rolling mill to fabricate the product. A 44-inch mill, capable of producing close tolerance coiled or flat sheets in finished widths up to 36", will be added to existing sheet rolling equipment at the company's Alcoa, Tenn., works.

The project will cost more than \$4 million and will take 18 months to complete.

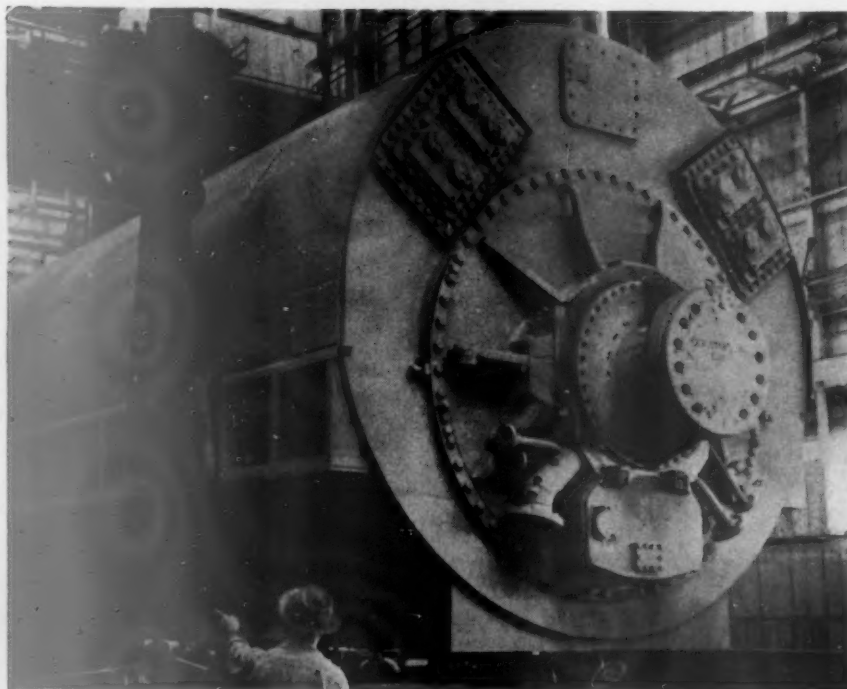
A new multi-million dollar factory, research laboratory and general office is being built in Northlake, Ill., by **Automatic Electric Co., Chicago**. Cost will be about \$16,000,000 and the plant will provide approximately 1,300,000 sq. ft. of floor space.

Plans for substantially increasing the production of titanium dioxide have been announced by **E. I. duPont de Nemours and Co., Inc., Wilmington**. Both the Edge Moor, Del., and Baltimore plants will be expanded to produce additional quantities of the pigment. The expansion program for Edge Moor is scheduled for completion by fall, and Baltimore by 1957. These facilities are rated to increase production by 25%. Also, plans are being studied for a new titanium dioxide plant at New Johnsonville, Tenn., with probable initial production in 1958.

Coincident with the merger of **Gaylord Container Corp., St. Louis**, with **Crown Zellerbach Corp., San Francisco**, a new company has been formed under the laws of the State of Missouri known as **Gaylord Container Corp.** The company is a wholly-owned subsidiary of **Crown Zellerbach**.

**Watson-Stillman Fittings Division, H. K. Porter Co., Inc., Roselle, N. J.**, has changed its name to **W-S Fittings Division**. The division's trade mark, two diamonds separated by the letters W-S, has been retained.

A new warehouse has been opened in St. Louis, Mo., by **SKF Industries, Inc., Philadelphia**, manufacturer of anti-friction bearings.



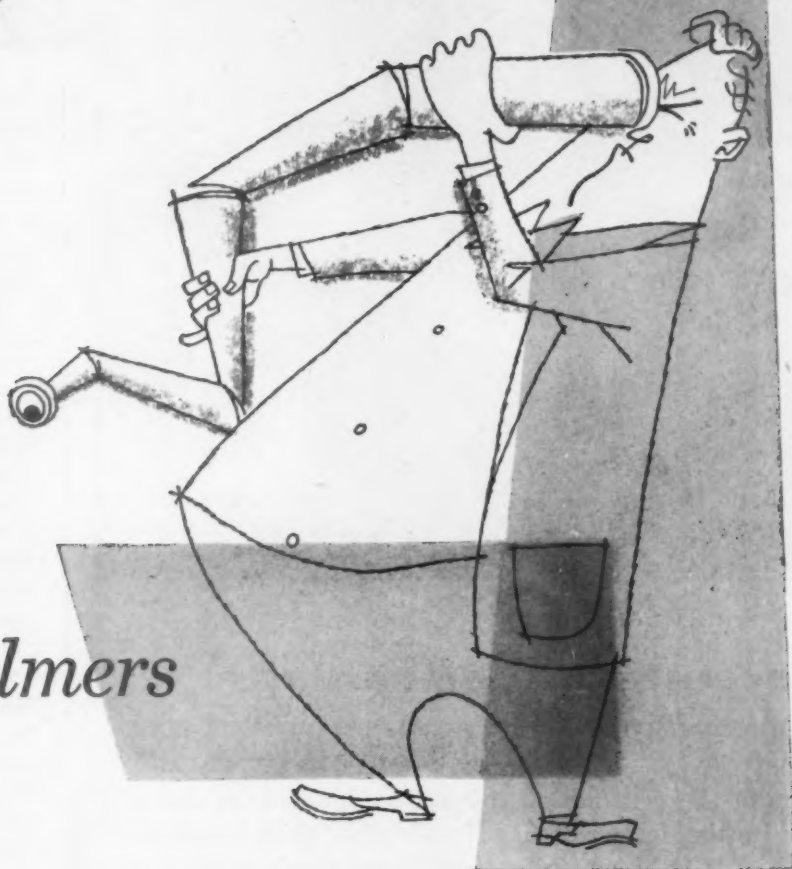
This 125,000 kw turbine generator, one of two generating units built for the Ohio Valley Electric Corp., has been shipped from the East Pittsburgh plant of Westinghouse Electric Corp. In combination with a 90,000 kw low-pressure generator, it helps supply electric power to the Atomic Energy Commission's gaseous diffusion project at Portsmouth, Ohio.



*Mr. Purchasing Man:*

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Factory-approved methods are available in all industrial centers.

# ALLIS-CHALMERS





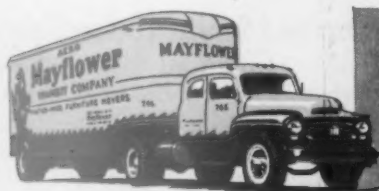
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WHEN YOU MOVE LONG-DISTANCE THE MAYFLOWER WAY

► While we don't keep millions of silk worms to spin silken cocoons for breakables, we do have hundreds of skilled packers who know how to fashion safe "cocoons" from carefully selected packing materials to protect the most fragile pieces! In fact Mayflower packing service has been scientifically developed, both in materials and methods, into approved, standardized procedures. These requirements are published in the Mayflower Packing Manual, called "Pack with Pride," for all to follow. The manual is the guide, and the title the watchword for the finest packing service you can get for the people you move long-distance. Call Mayflower for moves which are "Packed with Pride"! Your Mayflower agent is eager to serve you.

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**America's Finest Long-Distance Moving Service**

For More Information Circle No. 327 on Inquiry Card—Page 17

## industry

The first synthetic nitrogen plant in the south Atlantic states is being built by the newly organized **Southern Nitrogen Co., Inc., Savannah, Ga.** Costing \$14,000,000, it is scheduled to go on stream by the end of the year. It will produce 250 tons of ammonia per day for conversion into soil-enriching nitrogen solutions and prilled ammonium nitrate. It will also produce nitric acid and urea.

Two new additions, totaling 90,800 sq.ft., are being added to plant 4 of the **Trane Co., La Crosse, Wis.** Also, the company is building 30,000 sq.ft. on its plant in Scranton, Pa. All work is scheduled for completion by June.

The purchase of the **Barnaby Tools Division, Barnaby Mfg. Co., Inc., Bridgeport, Conn.,** has been announced by **Hamilton Mfg. Co., New Haven.**

The formation of the **Ross Heat Exchanger Division, American Radiator & Standard Sanitary Corp., Buffalo,** has been announced. The new division will handle operations in the heat exchanger field formerly carried on by Kewanee-Ross Corp. Kewanee-Ross is being dissolved and its plant operations taken over by the new division.

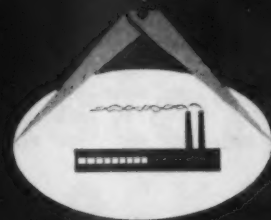
**Chrysler Corp., Detroit,** has acquired the plants, equipment and inventories of the **Universal Products Co.** and its wholly-owned subsidiary, **Formetal Co.**

A tantalum-columbium production expansion program is underway at **Fansteel Metallurgical Corp., N. Chicago, Ill.** The cost of the program, about \$1,000,000 will cover new buildings and alterations as well as new equipment.

For More Information Circle No. 328 on Inquiry Card—Page 17→  
**PURCHASING**

# DU PONT ELASTOMERS

## NEOPRENE - HYPALON®



*in Industry*

### HYPALON® tank linings for strong oxidizing agents

Now a wide range of chemicals can be safely handled by storage tanks and shipping containers for long periods. The secret is a lining made of HYPALON, Du Pont's new synthetic rubber. Tank linings of HYPALON have extra-high resistance to chemicals—even the strongest oxidizing agents have little effect on linings of HYPALON.

But exceptional chemical resistance is just part of the story: HYPALON also withstands temperatures from 250°F. to 350°F. It is *completely unaffected* by ozone and can take prolonged exposure to weathering and sunlight without deteriorating.



**TANK LINED** with HYPALON for storage of calcium hypochlorite. HYPALON is applied by standard lining methods, adheres firmly.

HYPALON can provide extra-high durability to products exposed to severe service conditions; such as hose for handling strong acids and hot fluids; gaskets and packings in high-temperature service; protective coatings for metal and masonry; and many others. To become acquainted with Du Pont HYPALON—just clip and mail coupon.

### Flexible NEOPRENE idlers for conveyor belts outlast steel idlers better than 8 to 1

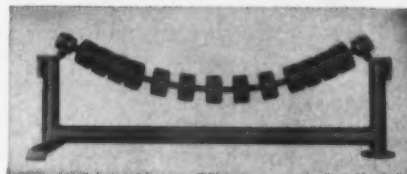


**NEOPRENE IDLERS** are still in service after two years. Accumulated sand previously fouled the steel idler bearings, stopped the idlers and damaged the belt. Average service was three months.

#### NEOPRENE resists abrasive action of sand, retains its flexibility

At one point in the production of castings at a magnesium foundry in the Midwest a conveyor belt carries molding sand from a chute up a 35° incline to another belt. Sand builds up under the belt. When the belt ran on steel idlers, sand fouled the bearings, jammed the idlers and damaged the belt. Average service life of the steel idlers was three months.

The manufacturer decided to install flexible idlers made of neoprene. The new idlers, developed by Joy Manufacturing Company, consist of neoprene discs permanently bonded to a flexible neoprene-sheathed steel cable and suspended from a single sealed bearing at each end. These end bearings are up out of the sand so spillage does not affect them. The discs supporting the belt, being flexible, conform to the shape of irregular loads, reducing loss of material through spillage. The idlers clean themselves because constant flexing forces the sand from



**NEW IDLERS** consist of resilient neoprene discs permanently bonded to a flexible neoprene-sheathed steel cable which is suspended from a single sealed bearing at each end.

between the rotating discs. Neoprene was the natural choice for this use because of its lasting resilience and resistance to the abrasive action of the sand. After two years—*more than eight times the service life of the steel idlers*—the neoprene idlers are still on the job.

Specifying neoprene in the rubber products you use can lower replacement and maintenance costs. Of all general-purpose elastomers, only neoprene possesses a *balanced combination of properties*. For more information on neoprene, mail the coupon below.



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Please send further information and add my name to the mailing list for your free publications, the "Neoprene Notebook" and "Facts about HYPALON®," which show how the Du Pont elastomers are used to cut maintenance and replacement costs, improve production.

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Evanston, Illinois, Ambassador 2-6700  
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CINCINNATI, OHIO, Wabash 1-4480  
Morrison-Drabner Steel Co.

CLEVELAND, OHIO  
Copper & Brass Sales, Inc., Endicott 1-6757  
Nottingham Steel & Aluminum Company  
Phone: Atlantic 1-5100

DALLAS, TEXAS  
Delta Metals, Inc., Phone: Logan 7443  
Earle M. Jorgensen Co., Riverside 1761

DAVENPORT, IOWA, Phone: 3-1895  
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DETROIT, MICHIGAN  
Alloy Steels, Inc., Phone: Texas 4-3893  
Copper & Brass Sales, Inc., Lorain 7-3380

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Eureka Metals Supply Co., Mutual 7286  
Earle M. Jorgensen Co., Lorain 7-1122  
Reliance Steel Company, Adams 3-3193

MEMPHIS, TENNESSEE  
Hubbell Metals Inc., Phone: 5-2676

MIAMI, FLORIDA, Phone: 84-3165—84-2490  
Fullerton Metals Co.

MILWAUKEE, WISCONSIN, Evergreen 4-6000  
Korhumel Steel & Aluminum Corp. of Wis.

MINNEAPOLIS, MINNESOTA, Geneva 2661  
Korhumel Steel & Aluminum Co.

NEW ORLEANS, LOUISIANA  
Orleans Steel Products Co., Inc.  
Phone: Raymond 2116  
Standard Brass & Mfg. Co., Audubon 1381

NEW YORK METROPOLITAN AREA  
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Phone: Walker 5-7500  
A. R. Purdy Company, Inc., Lyndhurst, N. J.  
Lyndhurst: Phone Webster 9-8100  
New York: Phone Chelsea 3-4455  
Newark: Phone Humboldt 2-5566

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American Brass & Copper Co., Higate 4-2366  
Gilmore Steel & Supply Co., Glencourt 1-1680  
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PITTSBURGH, PENNSYLVANIA, Churchill 2-3000  
William M. Orr Co., Inc.

PORT ARTHUR, TEXAS, Phone: 5-9377  
Standard Brass & Mfg. Co.

PORTLAND, OREGON, Phone: Tuxedo 5201  
Eagle Metals Inc. of Oregon

SAN FRANCISCO, CALIFORNIA  
Gilmore Steel & Supply Co., Klondike 2-0511

SEATTLE, WASHINGTON, Phone: Lander 9974  
Eagle Metals Company

SHREVEPORT, LOUISIANA, Phone: 2-9483  
Standard Brass & Mfg. Co.

SPOKANE, WASHINGTON, Keystone 0587  
Eagle Metals Company

ST. LOUIS, MISSOURI, Phone: Franklin 1-0212  
Hubbell Metals Inc.

SYRACUSE, NEW YORK, Syracuse 72-6677  
A. R. Purdy Co., Inc.

TULSA, OKLAHOMA, Phone: 85-1511  
Earle M. Jorgensen Co.

WATERBURY, CONNECTICUT  
Hawkrige Bros. Co., Plaza 6-8121

WICHITA, KANSAS, Amhurst 7-1208—7-1209  
General Metals, Inc.

## industry

The merger of Consolidated Chemical Industries into Stauffer Chemical Co., New York, has been announced.

A new Contract Manufacturing Division has been created by R. Hoe & Co., New York. It will make available to all industry Hoe's precision manufacturing skills and facilities such as normally used by the government in intricate and vital ordnance assignments.

The Daven Co., Livingston, N.J., makers of attenuators, precision wire wound resistors, rotary switches, etc., has opened its new 65,000 sq.ft. plant.

Pheoll Mfg. Co., Chicago, has purchased the Voi-Shan Mfg. Co., Inc., Culver City, Cal. Voi-Shan, which makes precision fasteners for the aircraft industry, will be operated as the Voi-Shan Mfg. Co., Inc., a subsidiary of Pheoll.

Farris Stacon Corp., Palisades Park, N.J., has been purchased by A. W. Cash Co., Decatur, Ill.

Sunroc Corp., Glen Riddle, Pa., has acquired P. O. Moore, Inc., New York.

The Naugatuck Chemical Division, United States Rubber Co., has opened a new latex processing plant in Gastonia, N.C.

The first of several units of a modern, single story plant to house the expanding facilities of the Otto Bernz Co., Inc., Rochester, N.Y., is now in use. The new unit adds 32,000 sq.ft. of floor space to the manufacture of the Bernz-O-Matic line.

The Celotex Corp., Chicago, has purchased a substantial interest in Cepco, Inc., San Francisco.

# Master PADLOCKS for industrial protection!



### Famous Master Laminated Padlocks

Multiple steel plates . . . stronger than a solid block! Genuine brass-cylinder, pin-tumbler security. No finer padlock protection.

### Stainless Steel Combination Padlocks

Double-wall construction . . . 3 number brass locking mechanism. Available with "Key-Control" — one control key opens all locks.



### Special Long or Short Shackles

For switch boxes, chains, truck or freight car doors, and other uses where special shackle lengths are more desirable.

### Speedy Service on Keyed-Alike and Master-Keyed Sets

Master's Service Department is geared for fast delivery . . . in emergencies, special orders are on the way within hours!



### FREE BROCHURE

Condensed, easy to use information on the Master padlocks most widely used for industrial applications. Write today.

## Master Padlocks

EVERY ONE AN OUTSTANDING VALUE.

Master Lock Company, Milwaukee 45, Wis.  
World's Largest Padlock Manufacturers  
For More Information Circle No. 373  
on Inquiry Card—Page 17

**Precision gears  
custom-made by Perkins**  
meet your specs  
**and** your time-table

Throughout industry, the name PERKINS in association with GEARS has long been symbolical with quality and service. Hence — be they washing machines or supersonic aircraft engines — if the component gears of the finished product are custom-made by Perkins, they will be better products. You furnish the specifications, we'll produce the gears!

PERKINS MAKES in all materials, metallic or non-metallic, and in any size, to your specifications: helical gears, bevel gears, sprockets, ratchets, worm gears, spur gears with shaved or ground teeth, ground thread worms.

NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want *when* you want it — in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire Sizes .005 to .125. Diameter from 3/32" to 12" and larger. Size of the compact coiler is only 7½ x 16". A POWER MODEL mounted on a welded steel console cabinet base is also available. Full information on request.

**Perkins Machine & Gear Co.**  
107 Circuit Ave., West Springfield, Mass.

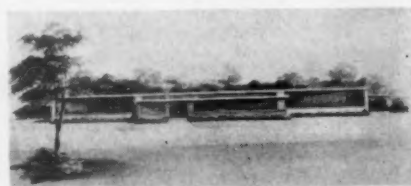


For More Information Circle No. 332 on Inquiry Card—Page 17

industry

Kelsey-Hayes Wheel Co., Detroit, and Steel Products Engineering Co., Springfield, Ohio, have merged.

Hoerner Boxes, Inc., Keokuk, Iowa, is building a modern corrugated box plant in Little Rock. The new building, containing 80,000 sq.ft. of floor space, is set for completion early this year.



A new plant is being built in Kenilworth, N. J., by Jacobson Nut Mfg. Corp.

The Chemical Division, Borden Co., New York, will double its west coast output of formaldehyde by building a new plant in Seattle, Wash. It will be geared to produce 36,000,000 lbs of formaldehyde per year, and is scheduled for completion late this year.

A new container plant for the production of steel drums, principally to serve the oil and chemical industries of Texas, has been opened in Port Arthur by Jones & Laughlin Steel Corp., Pittsburgh.

A major expansion of the sulfuric acid production facilities of its East St. Louis, Ill., works has been announced by General Chemical Division, Allied Chemical & Dye Corp., New York. The plant's capacity is being stepped up over 35% in order to supply increased demands of the oil, aluminum, detergent and fertilizer industries in the area. Construction is well underway and should be completed by March.

For More Information Circle No. 333 on Inquiry Card—Page 17→





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PRODUCTION OF PARTS:**

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Within its extensive organization, Ex-Cell-O has complete up-to-the-minute facilities for laboratory control, machining, heat treating, assembly, and inspection of parts produced in volume.

Ex-Cell-O's big engineering staff, with its years of experience, is at your service to work out production details.

The practical experience and manufacturing skill that have given Ex-Cell-O an outstanding record in production for more than 35 years will put to work for you the latest and best in methods and machines—from rough stock to finish piece. For fast production, utilizing every cost-saving advantage, come to Ex-Cell-O.

To see what Ex-Cell-O's huge parts production facilities can do for you, have a talk with your local Ex-Cell-O representative—or send your part, print, or sketch to Ex-Cell-O in Detroit.

**EX-CELL-O CORPORATION**

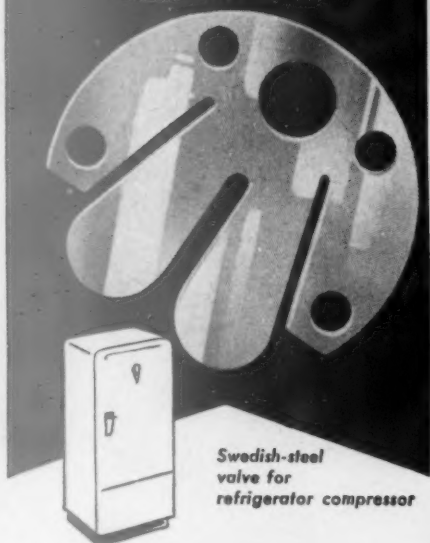
DETROIT 32, MICHIGAN



MANUFACTURERS OF PRECISION MACHINE TOOLS •  
GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS  
AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND  
MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

55-27

When the  
reputation  
of your product  
depends on  
critical  
stampings  
like this...



Swedish-steel  
valve for  
refrigerator compressor

As a critical part in a key component, this valve must perform flawlessly for years.

If not, the reputation of a leading refrigerator would be at stake.

That we are the world leader in such parts, may merit similar critical assignments from you.

*A brochure is yours for the asking!*



**DETROIT STAMPING  
C O M P A N Y**

Established 1915

408 Midland Ave., Detroit 3, Mich.

*"America's Leading  
Job Stamping  
Manufacturer"*

**Look to DETROIT!**

For More Information Circle No. 334  
on Inquiry Card—Page 17

industry

A new site for the recently announced steel stamping plant of **Chrysler Corp., Detroit**, has been selected in Twinsburg, Ohio. The new plant will contain 1,500,000 sq. ft. of manufacturing area and will house 28 lines of stamping presses. About 300 different types of stampings will be produced.

Construction of the first titanium sponge plant in the U. S., using the sodium reduction process, is nearing completion, ac-



cording to an announcement from **Union Carbide and Carbon Corp., New York**. The plant, at Ashtabula, Ohio, is part of the Electro Metallurgical Co., a division of Union Carbide. When completed, the plant will produce 7,500 tons of titanium sponge per year. Production is expected to start in the third quarter of 1956.

Further expansion of **Snyder Tool & Engineering Co., Detroit**, manufacturer of automated special machine tools, has been announced. The company has bought an 18,000 sq. ft. story-and-a-half brick building to handle the new facilities.

A new plant in Bellevue, O., that more than doubles production capacity of flexible metal tubing has been announced by **International Metal Hose Co., Bellevue**.

**Vulcan Crucible Steel Co. Division, H. K. Porter Co., Inc., Aliquippa, Pa.**, has opened a new warehouse and sales office in Cambridge, Mass. It will carry a full line of Vulcan tool steels and flat ground stock and drill rod.



**SHOP  
LIFTER**

This one-man hoist is a rigger's or millwright's pride and joy! The  $\frac{1}{2}$  and 1-ton sizes are shoulder-weight—easily carried up ladders, accessible to almost any tight corner, portable to practically any place in the shop. Other sizes up to 6-ton capacity offer similar weight and utility advantages over conventional spur geared hoists.

The Zephyr line also includes (1) plain and geared Army-trolley units with swivel-action trolleys that traverse minimum radius curves freely; (2) headroom-saving, clevis-connected trolley hoists that eliminate casual hoist removal. Construction and mechanical features of all Zephyrs are nothing short of superb. See them alongside a complete line of Chester Electric Hoists at your distributor's, or write or call us today for illustrated literature and complete specifications.

**CHESTER HOIST DIVISION**



The National Screw & Mfg. Co.

**LISBON, OHIO**

For More Information Circle No. 335  
on Inquiry Card—Page 17

**PURCHASING**



*"You're looking at Cora Gated"*

She's on the trucks  
that deliver the boxes  
that deliver the goods.  
For quality corrugated, be sure  
she's on the boxes you buy!



**HINDE & DAUCH**

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO  
13 FACTORIES • 42 SALES OFFICES





*When requisitions for supplies  
and services start to pile up . . .  
find what you need fast  
in the 'Yellow Pages'  
of telephone directories!*



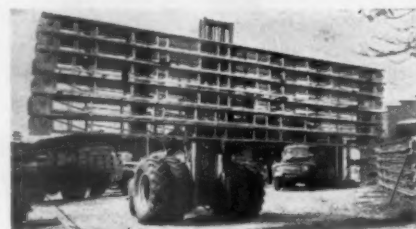
**AMERICA'S  
BUYING GUIDE  
FOR OVER 60 YEARS!**

For More Information Circle No. 337 on Inquiry Card—Page 17

## industry

The purchase of a 125,000 sq. ft. building in North Tonawanda, N. Y., formerly occupied by Adsco Industries, has been announced by **Tube Manifold Corp., Buffalo.** The new plant triples the manufacturing area of Tube Manifold. New production equipment, including the latest type mechanized hydrogen-copper brazing furnaces, special automatic machines and materials handling equipment, is being installed.

The purchase of the assets of the **Tracto-Lift Co., Kansas City, Mo.,** has been announced by Ot-



tawa Steel Division, **L. A. Young Spring & Wire Corp., Ottawa, Kans.**

To keep pace with the increasing demand for natural gas, **Rockwell Manufacturing Co., Pittsburgh,** manufacturers of valves, meters, regulators and complex flow recording instruments, has announced a large expansion program. Two new 100,000 sq. ft. plants are now under construction—one at Russellville, Ky., and the other at Porterville, Calif. Also, the company is negotiating the purchase of a third plant, recently completed by another company.

**American Cyanamid Co., New York,** and **The Formica Co., Cincinnati,** have announced that negotiations are in progress whereby Cyanamid, one of the nation's leading chemical companies, will acquire the business and assets of The Formica Co., producer of laminated plastics.

LOW VOLTAGE  
CONNECTION DIAGRAM

INDUCTION

MOTOR

HIGH VOLTAGE  
CONNECTION DIAGRAM



SERIAL NO	2242224		
TYPE	C0GX	215	FRAME
H.P.	5	1750	R.P.M.
VOLTS	220/440	3	PHASE
CYCLES	60	1.15	SERVICE FACTOR
°C RISE	40	CONT	DUTY
FRONT BEARING	205KD	307KD	SHAFT EXT. BEARING
CODE	G	B	NEMA DESIGN
AMPS.	14/7	C312	OPERATING INSTRUCTIONS

FRONT BEARING  
SIZE

SHAFT EXTENSION  
BEARING SIZE

CURRENT OPERATION  
AT 208 VOLTS

OPERATING  
INSTRUCTIONS

220 - VOLT MOTORS ARE USABLE ON  
208 - VOLT NETWORK SYSTEMS  
CURRENT AT 208 VOLTS 14.8 AMPS.

THE LOUIS ALLIS CO.  
MILWAUKEE, WIS., U.S.A. DIAG #364 110904

## why is this nameplate important to you?

It provides visible evidence that Louis Allis standard motors are built with special care to run better, last longer...

Look at the information on this nameplate—information that makes life a lot easier for the user. And to keep this information available at all times, we make this nameplate out of corrosion-resistant stainless steel.

Yes, in the new LA line of standard motors, even the nameplate gets special attention from our engineers. And here's what it means to you:

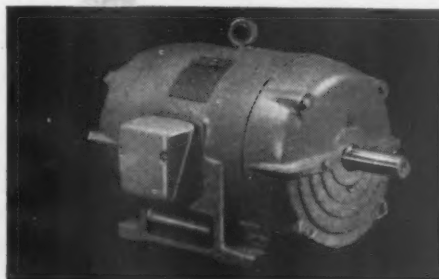
- The rerated frame size shown means more horsepower from motors with smaller outside dimensions. Performance has been improved by new materials and manufacturing methods.
- Spare bearings can be easily ordered from bearing size and type designations

on nameplate, thus eliminating disassembly of motor to determine bearing size. Bearings used are conservatively rated for long life.

- No more lost connection diagram since this information is simply and clearly shown on nameplate. This combined with permanent lead markings, assures that correct motor connections can always be made.

- 220/440 volt motors are suitable for operation on 208 volt systems and full load current for 208 volt operation is included on the nameplate. This eliminates need for original equipment manufacturers to carry a stock of 208 volt motors.

Because they are built with special care, new LA standard motors can do a lot more for you. New bulletin No. 1700 shows you why—just write for your copy.



A complete line of standard rerated motors in frames 182 through 326U now in stock. Special rerated motors are available on short delivery.

LA-106



THE LOUIS ALLIS CO.  
MILWAUKEE 7, WISCONSIN



## "Making steel is hot work

... a steel plant isn't the coolest place to be. But one thing keeps us happy ... we have all the cool water we need 'cause Halsey Taylor coolers are always on the job."

An abundant supply of cool water sanitarily provided is a "must" in any plant. Helps keep production up, fatigue down! Halsey Taylor Coolers provide these advantages PLUS maintenance economy, dependable operation, health-safety!

The Halsey W. Taylor Co., Warren, O.

**HALSEY TAYLOR**

*Industry's Favorite* **Coolers**

For More Information Circle No. 310 on Inquiry Card—Page 17



Cooler Shown:  
Vitreous China Top

## industry

After 22 years of manufacturing gummed tape dispensers and moisteners, **Lipton Mfg. Co., New York**, has changed its name to **Seal-O-Matic Dispenser Corp.**

**Libbie Printing Co., Boston**, has added folding box manufacturing facilities to its business. Libbie purchased the folding box plant of the **Rexall Drug Co.**

**Grobet File Co. of America, Inc.**, has moved its offices, factory, and warehouse to its newly completed building in **Carlstadt, N. J.** Grobet makes rotary files, countersinks and other industrial tools.

**Atlas Plywood Corp., Boston**, has installed special machinery to make its new **Ply-Fold** crate at its plant in **Newberry, Mich.** Previous **Ply-Fold** installations were set up at the plants in **Morrisville, Vt.**, and **Camden, O.**

A five-year expansion program has been announced by **The Carpenter Steel Co., Reading, Pa.** The Alloy Tube Division, Union, N. J., and Webb Wire Division, New Brunswick, N. J., share in the five-year blue-print. The 1956 part of the program includes installation of a large hydraulic forging press and an additional arc-melting furnace. The press will increase Carpenter's capacity for the manufacture of high temperature alloys and larger size forgings. The furnace is expected to increase melting capacity by 20%. Also contemplated are a high speed bar turning machine, additional heat treating equipment, and modern handling equipment.

**Continental Screw Co., New Bedford, Mass.**, is building an addition to its plant to be used by **Hy-Pro Tool Co.** The cost of the new building and new equipment will cost nearly \$250,000.

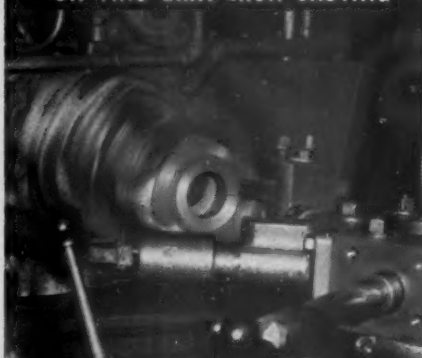
## BOWERS BATTERIES

*Always  
Better*

BOWERS BATTERY & SPARK PLUG CO., READING, PA.

For More Information Circle No. 311  
on Inquiry Card—Page 17

## UNIT MACHINING COST CUT 17% ON THIS GRAY IRON CASTING



...thanks to  
**FERROCARBO®**

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they **COST YOU NO MORE**... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 32, Niagara Falls, N. Y. 04-52

**CARBORUNDUM®**

For More Information Circle No. 312  
on Inquiry Card—Page 17



### Saves You Money!

Most economical, *fast* service for international shipping. Reductions up to 50% on the domestic haul mean savings in export-import traffic. Co-ordinated service assures swift, dependable deliveries . . . making merchandise available for maximum profits.

### Saves You Time!

Safe, swift, sure service gives you advantage of nationwide network of Railway Express ground and air service serving 23,000 communities. Carries your shipment from point of shipping to point of embarkation. Super all-cargo flights rush your shipments abroad . . . dispatched to *exact* destination with speed and efficiency. (Through air service is also available with Railway Express.)

# NOW

RAILWAY  
EXPRESS  
AGENCY

# GOES WORLD WIDE

COVERS ALL 6 CONTINENTS . . .  
106 COUNTRIES!

### Saves You Bother!

Through waybilling carries your shipment from anywhere in the U.S.A. to 106 different countries. Eliminates costly, time-consuming paper work . . . assures you efficient shipping.

Call your Railway Express Agent today for complete details.

NO MATTER WHERE IN THE WORLD YOU'RE SHIPPING...USE

... safe, swift, sure



WHEN ORDERING

LAMPS

YOU'RE ACTUALLY  
BUYING

LIGHT...

*specify*

**DURO-TEST**  
BUILT STRONGER TO BURN LONGER

*Here's why:*

Duro-Test lamps are America's best . . . exclusively designed for heavy industrial and commercial service.

Operating at their rated watts and volts, they far outlast conventional lamps, yet maintain high lumen output throughout life.

Results? These stronger-built, longer-burning lamps reduce your overall lighting costs. Our representative in your area will show you how. WRITE NOW TO—

**DURO-TEST** Corporation

NORTH BERGEN • NEW JERSEY

WAREHOUSES IN PRINCIPAL CITIES FOR PROMPT SHIPMENT

For More Information Circle No. 340 on Inquiry Card—Page 17



© 1955 Duro-Test Corp.

FLUORESCENT  
INCANDESCENT  
MERCURY VAPOR



industry

Ground has been broken for a new engineering building for **Western Gear Corp., Lynwood, Calif.**, at Lynwood. Containing more than 20,000 sq. ft. of work space, the building will cost more than \$250,000. It will provide quarters for more than 200 engineers.

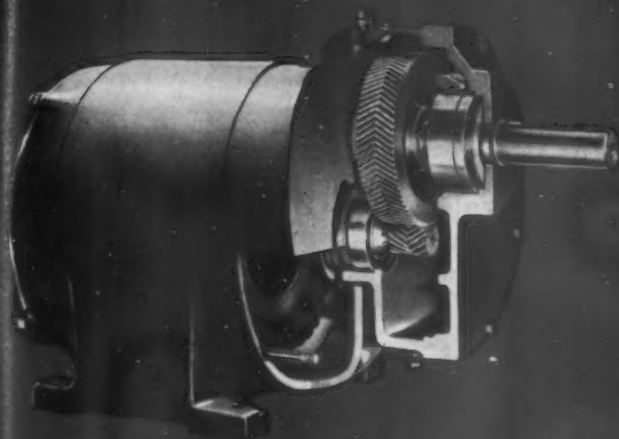
To meet the aircraft industry's demands for greater production, **H. W. Loud Machine Works, Inc., Pomona, Calif.**, is completing a \$700,000 plant and facilities expansion program. Loud manufactures structural fittings, including wing and landing gear fittings; hydraulic cylinder and valve assemblies; machined parts and miscellaneous equipment and control assemblies. Six automatic duplicating type Cincinnati hydrotels and a 12,688 sq. ft. building to house them, represent a cost of \$550,000. Another \$150,000 is being spent to enlarge Loud's tool and die department.

**Hammond Mfg. Corp., Pasadena, Calif.**, has merged with its wholly-owned subsidiary, **Air Logistics Corp.** The new corporation will be known as Air Logistics Corp.

Plans for a further expansion of production facilities have been announced by **Milton Steel Division, Milton, Pa.**, of Merritt-Chapman & Scott Corp. A third electric furnace that will increase annual ingot production by 40% is among additional facilities to be installed as part of a progressive improvement program. Milton steel manufactures concrete reinforcing bars, merchant bars, strip and bar size angles.

**Reynolds Metals Co., Louisville**, is building a \$5,500,000 aluminum extrusion plant at Bellwood, Va. The plant is expected to be in production by the third quarter of 1956.

For More Information Circle No. 341  
on Inquiry Card—Page 17→



SINGLE REDUCTION  
Parallel Shaft Type

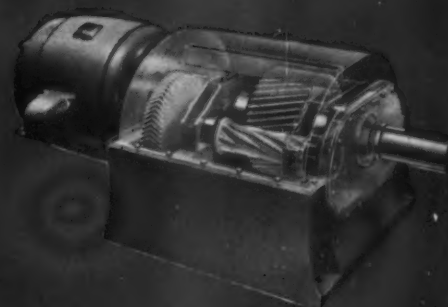


-1st Choice

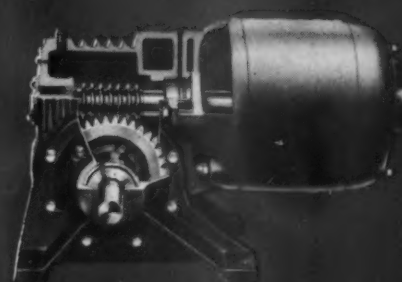
for GEARMOTORS

Because...

- ... With five types of parallel and right angle Gearmotors, Master has the flexibility and choice of design you need for selected output speeds.
- ... With electric motor and gears combined into a compact, integral power unit, you reduce costs and increase efficiency through elimination of belts, couplings, chains, sprockets, external bearings or separate reducers.
- ... Available in sizes from  $\frac{1}{8}$  to 125 H.P. You can integrate with the gearmotor electric brakes—3 types of variable speed units and fluid drive in any combination.
- ... And that's why more gearmotors carry the Master name than all other makes combined. Write on your business letterhead for details.



DOUBLE REDUCTION  
Parallel Shaft Type



SINGLE REDUCTION  
Right Angle Shaft Type

THE MASTER ELECTRIC COMPANY

Dayton 1, Ohio



## industry

A \$5,000,000 appropriation announced in 1955 by **Timken Roller Bearing Co., Canton**, will be spent to improve production facilities at the firm's Columbus plant. Included in the new equipment will be screw machines, heat treating equipment, roller headers, and inspection department and a shipping department. The railroad bearing production unit is scheduled for completion by January, 1957. It will have an annual capacity of 160,000 bearings.

The formation of **Duro-Test Electric, Ltd., Toronto**, as a wholly-owned subsidiary, has been announced by **Duro-Test Corp., North Bergen, N. J.**

**Infilco Inc., Tucson, Ariz.**, manufacturer of all types of water and waste treatment equipment, has organized a new division, the **Ion-Exchange Division**.

**Alan Wood Steel Co., Conshohocken, Pa.**, has launched the second phase of its expansion program involving an increase of 19% in steel making capacity and the expenditure of nearly \$14,000,000 over the next two years. Major items in the current program include a new open hearth furnace together with an improved water cooling supply system for the open hearth department, new cold rolled annealing facilities and a new cold rolled temper mill. The improvements will bring the company's rated capacity up to 800,000 ingot tons per year.

**The Thor Power Tool Co., Aurora, Ill.**, manufacturer of portable air and electric power tools, has acquired the assets of **Cincinnati Rubber Mfg. Co., Cincinnati**. Cincinnati Rubber makes transmission and conveyor belting, hose, rubber roll covers, packings, gaskets, etc.

Something  
goes into  
this box  
besides  
quality  
cigarettes...

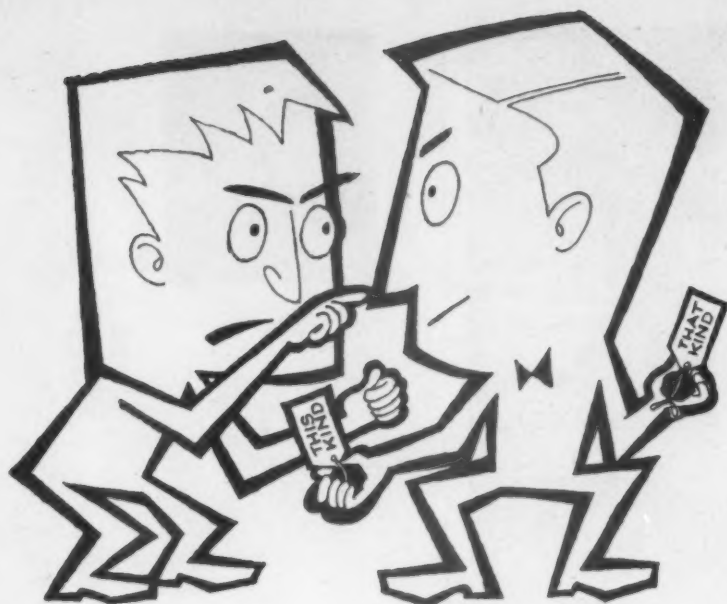


### NATIONAL FOLDING BOX COMPANY DIVISION FEDERAL PAPER BOARD COMPANY, INC.

SALES OFFICES: CHRYSLER BUILDING, NEW YORK 17, N.Y.; NEW HAVEN AND VERSAILLES, CONN.; BOGOTA, N.J.; BOSTON AND PALMER, MASS.; STEUBENVILLE, OHIO; PHILADELPHIA AND PITTSBURGH, PA.

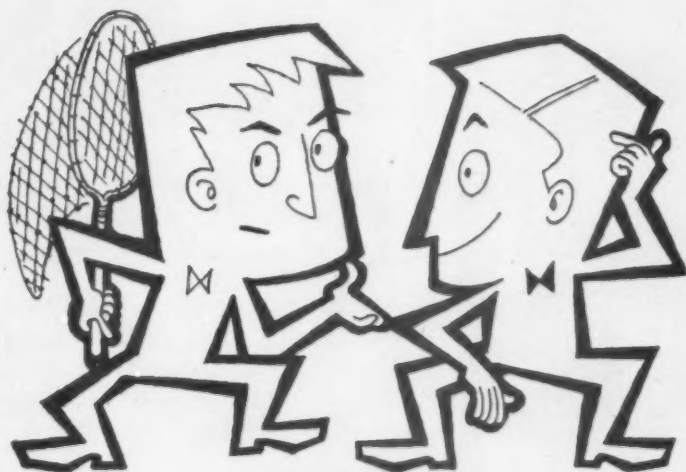
FOLDING BOX PLANTS: BOGOTA, N.J.; NEW HAVEN AND VERSAILLES, CONN.; PALMER, MASS.; STEUBENVILLE, OHIO; PITTSBURGH, PA. PAPER BOARD MILLS: BOGOTA, N.J.; NEW HAVEN, MONTVILLE AND VERSAILLES, CONN.; READING, PA.; STEUBENVILLE, O.; WHITE HALL, MD.

For More Information Circle No. 342 on Inquiry Card—Page 17



What's the big idea  
buying several kinds  
of coal for our  
steam plants?

It's a good idea. The kind of coal that burns  
most economically in the old boilers isn't  
efficient for the new ones.



How do you know  
you're right?

Look at the coal bills. We are generating  
more steam at a lower fuel cost. You can tell  
from the ashes we are getting more complete  
combustion, and there's less clinkering.



Where did you  
get this idea, anyway?

From the C & O Coal Department. They  
convinced us that different types of burning  
equipment need different types of coal. From  
the high quality coal produced on the C & O,  
we selected the quality and size of coal that  
works best in our particular installations.



There's a lot more to buying coal than  
the cost per million BTU. Why not con-  
tact coal producers on the C & O to  
solve your particular fuel requirements,  
or write to: R. C. Riedinger, General  
Coal Traffic Manager, Chesapeake &  
Ohio Railway Co., Terminal Tower,  
Cleveland 1, Ohio, for the assistance of  
a C & O fuel service engineer.

**Chesapeake and Ohio Railway**

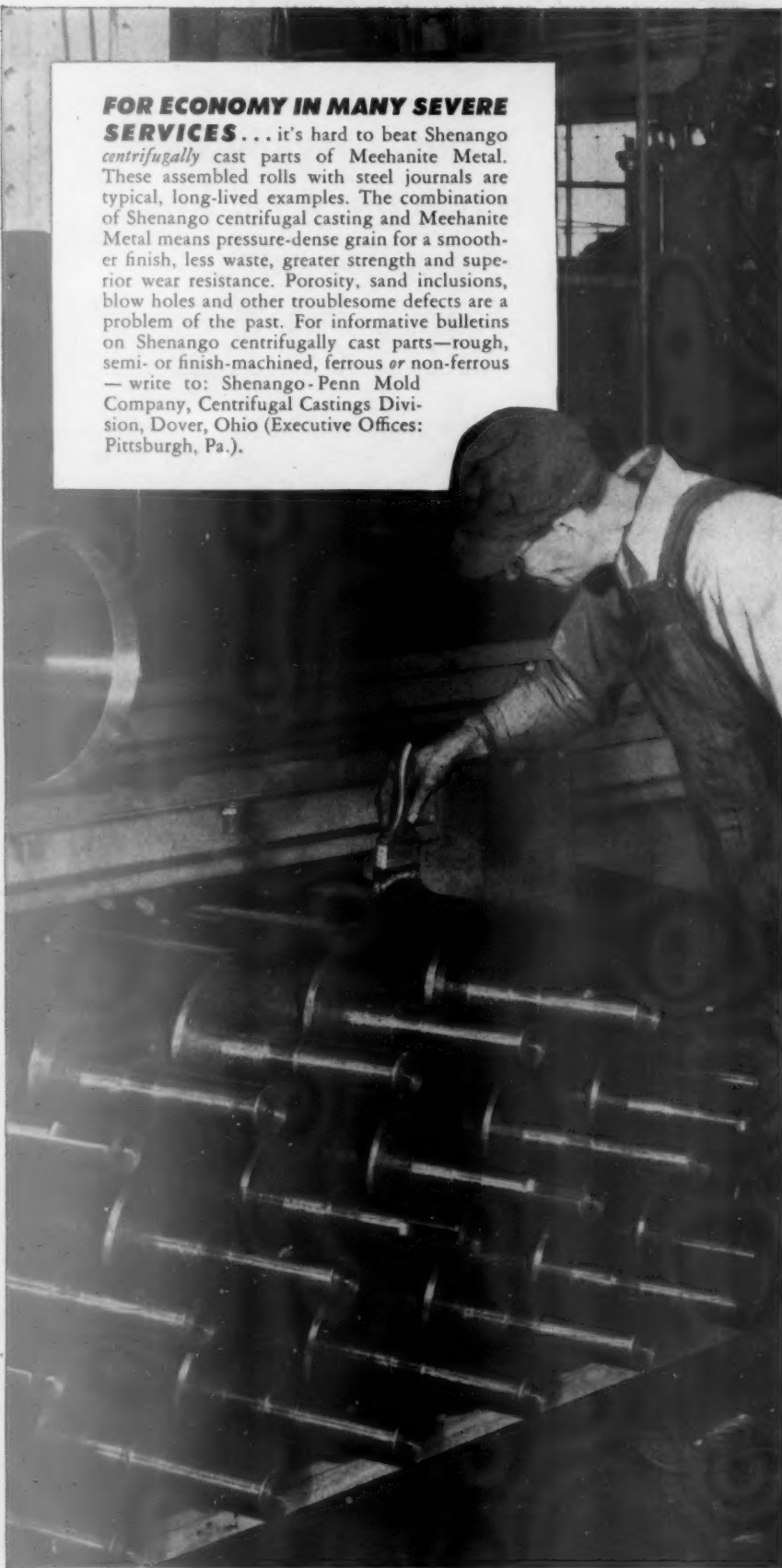
WORLD'S LARGEST CARRIER



OF BITUMINOUS COAL

**FOR ECONOMY IN MANY SEVERE SERVICES...**

...it's hard to beat Shenango centrifugally cast parts of Meehanite Metal. These assembled rolls with steel journals are typical, long-lived examples. The combination of Shenango centrifugal casting and Meehanite Metal means pressure-dense grain for a smoother finish, less waste, greater strength and superior wear resistance. Porosity, sand inclusions, blow holes and other troublesome defects are a problem of the past. For informative bulletins on Shenango centrifugally cast parts—rough, semi- or finish-machined, ferrous or non-ferrous—write to: Shenango-Penn Mold Company, Centrifugal Castings Division, Dover, Ohio (Executive Offices: Pittsburgh, Pa.).



**SHENANGO** CENTRIFUGAL CASTINGS

COPPER, TIN, LEAD, ZINC BRONZES • MONEL METAL  
ALUMINUM AND MANGANESE BRONZES • NI-RESIST • MEEHANITE METAL

For More Information Circle No. 344 on Inquiry Card—Page 17

**suppliers**

**Wisconsin Motor Corp.**, Milwaukee, has named Tom Barrett as assistant sales manager. He had been a sales representative for Wisconsin Motor for the past seven years.

Jesse A. MacIntire, Jr., former Chicago district manager, is now manager, wire braid hose sales,



J. A. MacIntire



I. G. Wollter

for the Republic Rubber Division, Lee Rubber & Tire Corp., Youngstown, Ohio. Irving G. Wollter replaces Mr. MacIntire as Chicago district manager.

Erickson Industrial Products Co., Dallas has been made Dallas representative for Cleaver-Brooks Co., Milwaukee.

Charles J. Lehneis, Jr., has been named district manager for the Buffalo Fire Appliance Corp., Dayton. He will cover Pennsylvania, Maryland, Delaware, and the District of Columbia.

Inland Associates has been appointed sales representative for Magnetics, Inc., Butler, Pa. Inland will cover Kansas, western Iowa, Missouri, and Nebraska.

Allis-Chalmers Mfg. Co., Milwaukee, has appointed J. D. Harmon as manager, parts sales, for the tractor group.

Gordon Ley has been appointed district representative serving the Colorado area, according to Electric Steel Foundry Co., Portland, Ore.





## NEW METHOD

# Never Again A Broken Window

Now you can put an end to the costly problem of broken glass in your plant buildings...install *Alsynite Flat Panes*, made of shatterproof translucent fiberglass.

You know it's an expensive task to continually replace broken glass—about \$3 to replace a single 12" x 18" window light. And you know, too, how many are broken every week from frame twist, vibration, thermal expansion, impact.

Wipe out these expensive maintenance costs once and for all with *Alsynite Flat Panes*. *Alsynite* saves you money in these other important ways, too:

1. Eliminates the need for painting—colors are built-in, available in six scientific-

cally-selected colors to solve any daylighting problem.

2. Provides properly diffused light; maximum usable light slashes your artificial lighting costs.

3. Reduces solar heat transmission.

4. Stops glare, increasing worker efficiency and production.

*Alsynite* also is available in standard corrugations to nest with sheet metal.

**ALSYNITE COMPANY OF AMERICA**  
DEPT. B-12, SAN DIEGO 9, CALIFORNIA

Send me new folder on *Alsynite Flat Panes*

NAME

COMPANY

ADDRESS

CITY  STATE

DISTRIBUTORS IN PRINCIPAL CITIES

FEBRUARY, 1956

For More Information Circle No. 345 on Inquiry Card—Page 17

# Norgren the most complete line of AIR LINE FILTERS

...to reduce corrosion, wear, upkeep costs of air equipment

...to prevent contamination of oil in Micro-Fog lubrication systems

85 MODELS...7 PIPE SIZES...3 TYPES OF FILTER ELEMENTS...3 TYPES OF BOWLS



## AUTOMATIC-DRAIN AIR FILTER

1/4", 3/8", 1/2". For pressures up to 150 psi.; temperatures up to 120° F. Filter elements: 74-, 64- or 25-micron. Replaceable, transparent bowl. Series 11,200.



## AIR FILTER

for pressures up to 250 psi. 1/4", 3/8", 1/2". Replaceable, metal bowl. Filter elements: 74-, 64- or 25-micron. For temperatures up to 300° F. Series 22N.



## SMALL BOWL AIR FILTER

1/4", 3/8". For pressures up to 150 psi, temperatures up to 120° F. Replaceable, transparent bowl. 74-, 64- or 25-micron filter element. Series 12,200.



## AIR LINE FILTERS

for pressures up to 150 psi. 1/4" to 1" incl. Replaceable, transparent bowl in two sizes. 74-, 64- or 25-micron filter element. For temperatures up to 120° F. Series 22B.

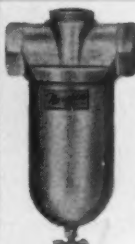


**MORE THAN  
750,000  
Norgren Filters  
put to use  
by industry**



## SMALL, METAL BOWL AIR FILTER

for pressures up to 250 psi. 1/4", 3/8". 74-micron filter element. Permanent bowl. For temperatures up to 300° F. Series 0-552 and 0-554.



## AIR FILTER

Permanent, metal bowl. 3/4" to 1 1/2" incl. 74-micron filter. For pressures up to 250 psi; temperatures up to 300° F. Series 560.



## AIR PURIFIER

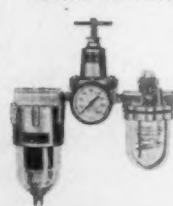
for exceptionally thorough removal of moisture. 74-micron Wire Screen and Yarn filter elements. Replaceable, transparent or metal bowls. 1/4". Series 21B and 21N.



## FILTER-REGULATOR UNIT

Automatically filters air and regulates air pressure. Replaceable, transparent or metal bowl. 1/4", 3/8". Series 5A and 5N.

## LUBRO-CONTROL UNIT (Model 3745A-2)



typical combination of Norgren Automatic-Drain Filter, Pressure Regulator and Micro-Fog Lubricator.

Phone the Norgren representative listed in telephone directory classified section under "Norgren Pneumatic Products" or



## WRITE FOR CATALOG

...shows latest developments in filters with data on Norgren's complete line of oil-fog lubricators, pressure regulators, valves.

suppliers

Don Gibbons is now division manager for Chicago and northern Illinois, according to an announcement from **Aro Equipment Corp., Bryan, O.**

Donald R. Shaffer, formerly manager of the Long Island City office of the **Hyster Co., Portland,**



**D. R. Shaffer**

Ore., is now district manager of the north central district of the Eastern Industrial Truck Division.

**Gilman Paper Co., New York,** has announced two personnel changes. Ken J. Rawson, formerly eastern territory representative, has been made sales manager of the Standard Products Division, dealing with gummed tape, reinforced tape, wrapping paper, etc. Herbert D. Sedlis, previously with Franconia Paper Co., takes over the sales territory formerly covered by Mr. Rawson.

**McKinney Mfg. Co., Pittsburgh,** has appointed Glenn K. Rosenfelder as manager of the central sales region. He will headquarter in Chicago and manage operations in Illinois, Missouri, Wisconsin, Kansas, Colorado, Utah, New Mexico, Minnesota, Iowa, North Dakota, South Dakota, Wyoming, and northwestern Indiana.

# TAYLOR

Laminated Plastics  
Vulcanized Fibre

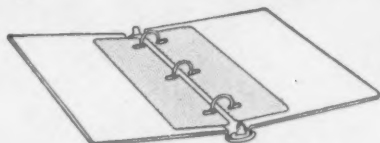
# Shop Talk

TAYLOR FIBRE CO.

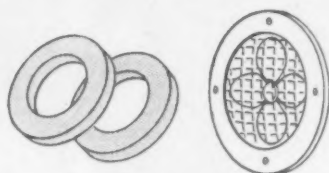
Plants in Norristown, Pa. and La Verne, Calif.

PHENOL—MELAMINE—SILICONE—EPOXY LAMINATES • COMBINATION LAMINATES • VULCANIZED FIBRE • POLYESTER GLASS ROD

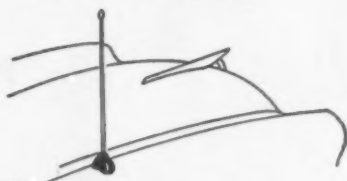
## Tips for designers



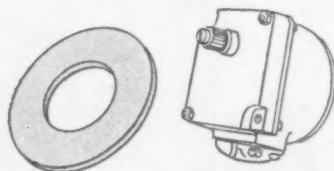
**Flippers** for loose-leaf binders are made of economical Taylor Vulcanized Fibre . . . affording added rigidity and good protection for the paper pages.



**Large exhaust fans** use Taylor Paper Base Phenolic washers to help absorb thrust . . . an inexpensive arrangement, with long life.



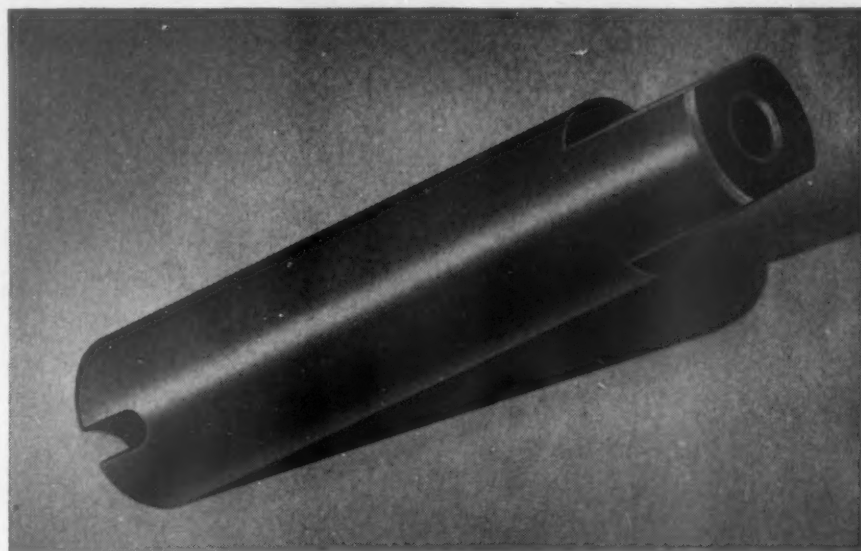
**Radio antennas** for the colorful, new cars may be made from equally colorful Taylor Polyester Glass Rod, with a copper wire center.



**Self-balancing servo motor** has stator case insulator which is cold-punched from  $\frac{1}{4}$ " thick Taylor Paper Base Phenolic Laminate sheet.

### VISIT WITH TAYLOR AT THE I.R.E. SHOW

Qualified technical personnel will be on hand in the Taylor booth (#675) at the I.R.E. Show in New York's Kingsbridge Armory, March 19 through 22. Visit with Taylor while you're at the show and discuss your application requirements as well as the latest advancements in high-performance laminates.



This impeller shaft, used in the famous Hotpoint Dishwasher, is easily and economically fabricated from Taylor Paper Base Phenolic Tubing.

## Fabrication ease holds down costs —when you use Taylor laminates

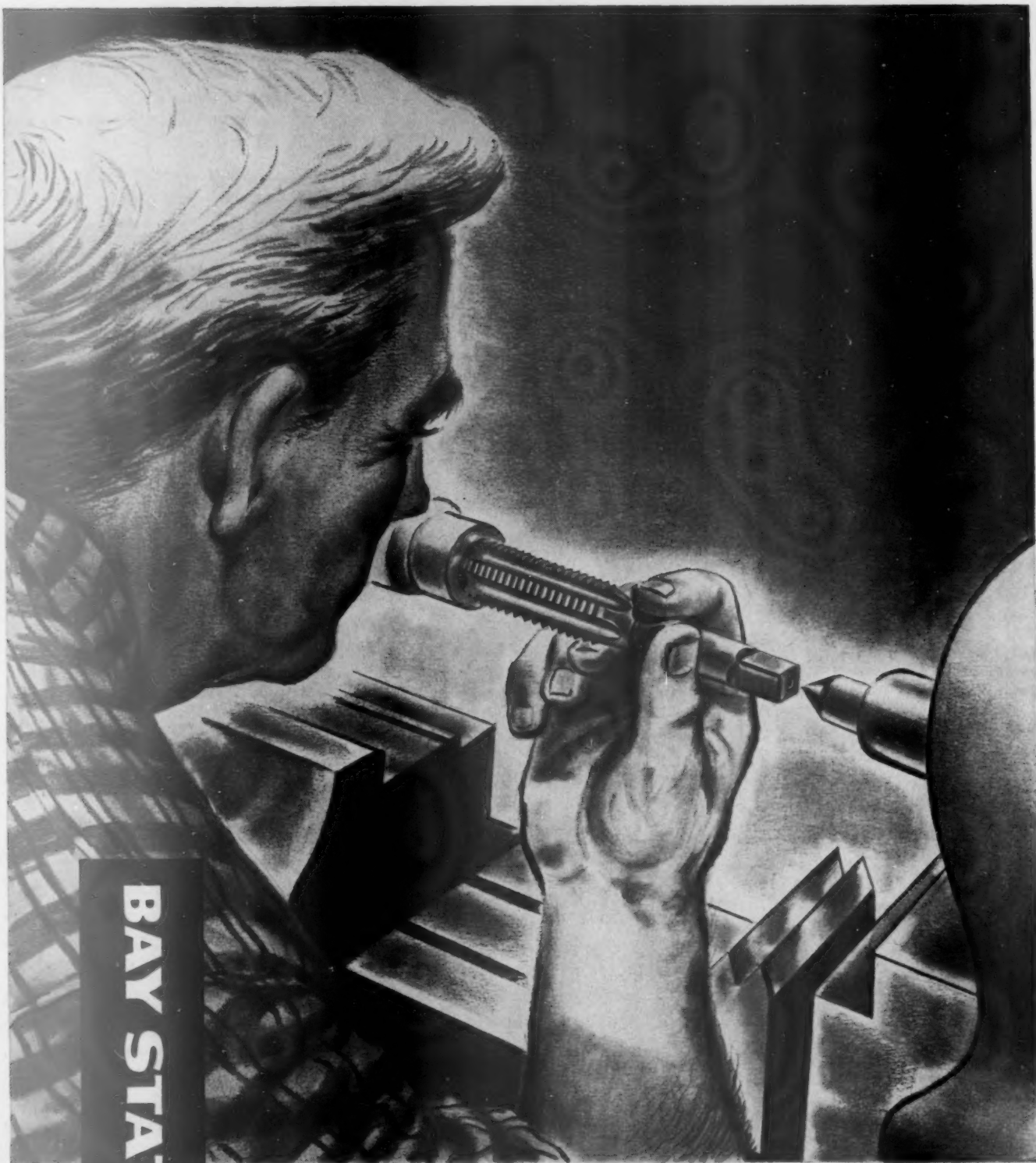
Economy-minded designers and production managers are discovering plus qualities in the excellent fabricating properties of Taylor phenol, melamine, silicone and epoxy laminates. In addition, the large sheet size and choice of forms in which these materials are supplied make for further economy in utilization . . . through maximum yield of purchased stock.

This outstanding ease of fabrication is not happenstance . . . for all Taylor laminates are the result of resin formulations and production techniques designed to facilitate economical conversion to completed parts. Punching, staking, milling, sawing, drilling . . . you'll find it's easier when you use a Taylor basic material.

Included in the broad selection of Taylor laminates are a great variety of different bases and different grades . . . each with its own combination of electrical and physical properties, qualifying it for a specific application at a reasonable price.

And, here's another *plus!* Your production problems can be simplified . . . schedules safeguarded . . . inventory headaches cured . . . and overall costs reduced . . . by having your finished parts prepared to your specifications in the Taylor Fabricating Division. Valuable experience coupled with complete facilities are ready to serve you. Call on Taylor for a discussion of your particular requirements.





## BAY STATE TAPS

### QUALITY COUNTS!

New heights in precision performance can be reached with BAY STATE TAPS . . . and you will find this type of performance waiting for you at your local Industrial Supply Distributor.



BAY STATE TAP & DIE COMPANY  
MANSFIELD, MASSACHUSETTS

# VARNISHED CAMBRIC CABLE

In single conductor sizes from #14 A.W.G. to 2,000,000 C.M. In multiple conductor sizes from #14 A.W.G. to 750,000 C.M. For use up to 17,000 volts between conductors for non-shielded multiple conductor cables; for single conductor and shielded cables operating on an ungrounded neutral system not over 21,000 volts between phases, and for single conductor and shielded cables operating on a grounded neutral system not over 28,000 volts between phases.



Insulated with varnished cambric tape, in accordance with I.P.C.E.A. and Underwriters' specifications unless otherwise specified by you.

Manufactured with solid conductors or stranded in a variety of strandings, coated or uncoated, according to your needs. Available in single or multiple conductor.

For outside covering, you have a choice of braid, for service in dry locations; lead, for service in damp locations; and for aerial use or direct burial we recommend a protective armor such as steel tape or galvanized round wire armor.

AS LEADS FOR MOTOR AND OIL SWITCHES, GENERATORS, TRANSFORMERS,

## YOU WANT

- TOP RESISTANCE TO HIGH OPERATING TEMPERATURES, OIL AND GREASE;
- DEPENDABILITY THAT SAVES REAL TIME AND MONEY —

IN SHORT,

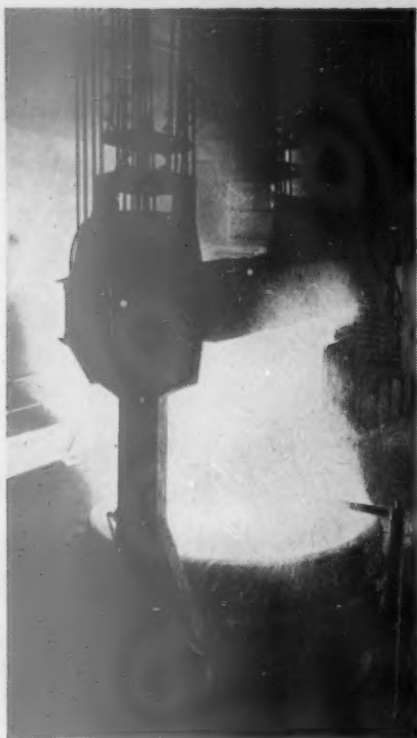
## YOU WANT

# ROEBLING

*Subsidiary of The Colorado Fuel and Iron Corporation*

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 11-18 STILLING ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • PITTSBURGH, 1723 HENRY W. OLIVER BLDG. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N. Y.





## SAFE HANDLING REQUIRED

When white-hot molten steel is poured, only the finest quality products are specified to insure absolute safety. The wire rope lines that control movement of the ladle above are secured with genuine Crosby Clips. Easily recognized by the famous Red-U-Bolt, genuine Crosby Clips are drop-forged and hot-dip-galvanized for maximum wearing ability. The safest clip sold, genuine Crosby Clips are specified for safety in more plants than any other drop-forged rope fasteners. A complete range of sizes  $\frac{1}{8}$ " to 3".



### STRONG AS 3B CHAIN

Added safety is given to men and equipment using repaired steel chains with genuine Laughlin "Missing Links". As strong as 3B chain, Laughlin "Missing Links" are drop-forged from special forging steel, heat-treated, and matched under pressure for a perfect fit. Available in a complete range of sizes  $\frac{3}{16}$ " to  $1\frac{1}{2}$ " at distributors everywhere.



### HANDLES 4 CHAIN SIZES

Four different clevis hook sizes can be interchanged instantly on Laughlin's new Load Binder—industry's safest and strongest. Laughlin's Load Binder with 20-inch handle takes Laughlin Clevis hook sizes  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ ". The 22-inch Load Binder takes  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and 1" sizes. Extremely strong, Laughlin Load Binders won't spread even under heavy strain because the swivel tongue swings *within* the handle-end slot, and the clevis is on the trunnion.



### PERFECTLY ALIGNED

Safer performance and far greater strength are obtained with Laughlin shackles because the pin holes are drilled—assuring perfect alignment. Made of special forging steel throughout, the pins are heavier and stronger than the shackle itself to prevent shearing due to shifting or shock loads. Weldless and drop-forged, famous Laughlin "Perfectly Aligned" shackles are available in a complete range of sizes from  $\frac{3}{16}$ " to 3" at distributors everywhere. For free catalogs on the complete Laughlin and Crosby lines, write the Thomas Laughlin Division, Portland, Maine, or the Crosby Division, American Hoist & Derrick Co., St. Paul 1, Minnesota.

(Advertisement)

For More Information Circle No. 349 on Inquiry Card—Page 17

suppliers

**Armstrong Machine Works, Three Rivers, Mich.**, has appointed Power Specialties Co., Inc., Arlington, Mass., as its district representative in New England.



C. H. Wills



W. S. Hoskin

C. H. Wills has been named vice president, and W. S. Hoskin, general sales manager, of **Michigan Abrasive Co., Detroit**.

Five new district offices have been announced by **American Blower Corp., Detroit**. They are, with their managers; Youngstown, Ohio, J. R. Hopkins; Wichita, Kans., O. J. Dupree; San Antonio, Texas, W. F. Markey; Evansville, Ind., J. B. Clayton; and Nashville, Tenn., B. G. Kemp.

W. O. W. Smith, Jr., has joined the **Rockford Clutch Division, Borg-Warner Corp., Chicago**, as a sales engineer and direct factory representative in the western oil fields. He will headquarters in Houston, Texas.

**Clark Controller Co., Cleveland**, has named Bruce Electric Co., New Castle, Pa., as a distributor of Clark's line of push-buttons, relays, contactors, starters, and related industrial electrical control equipment.

Two new representatives have been named by **Michigan Steel Tube Products Co., Detroit**. Donald A. Harston will cover northern Ohio, and William P. Hall will handle the Dayton area.



## HIGHER WITHDRAWAL TORQUE . . .

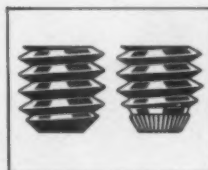


## Greater resistance to removal holds Allenpoints tighter in your products

Tests prove that ALLENPOINT Set Screws have 50% HIGHER WITHDRAWAL TORQUE than serrated point set screws



**HIGHER WITHDRAWAL TORQUE WITH ALLENPOINTS!** In  $\frac{1}{4}$ " x  $\frac{1}{4}$ " sizes, tightened to shear point of key, Allenpoints required 75 inch-pounds removal torque. Serrated point set screws gave up their hold at only 50 inch-pounds removal torque.



**ONE MORE FULL THREAD WITH ALLENPOINTS!** Compare, and you'll find that Allenpoints have *one more full thread* than same size serrated point set screws. That means greater holding power, especially in the much-used "square" sizes.

### DEEPER, CLEANER SOCKETS WITH ALLENPOINTS!

Allenpoint sockets are "pressur-formd" to preserve the long fibers of the steel uncut throughout the *entire* length of the screw. This makes a deep socket of maximum strength, in which the key seats with great exactness.

**Specify ALLENPOINTS** for far greater *holding power* — the kind of fastenings that "stay put". Genuine Allenpoints and other Allen fasteners are available from your Industrial Distributor — standard items immediately, special items very promptly. Write for full information.

You want maximum holding power from every set screw in your product. Here's why you'll get that from ALLENPOINT O Set Screws: Allenpoints and serrated point set screws were recently compared in laboratory tests. They were the kind of tests you'd make in your own plant — random samples of each were chosen from regular stock boxes from distributors' shelves.

In each test, keys were tightened right up to the shear point — maximum tightening point for any set screw. In each test, 50% HIGHER WITHDRAWAL TORQUE was required to release the ALLENPOINT O Set Screws.

Translated into your own product, this means more dependable fastening with ALLENPOINTS.



# ALLEN

MANUFACTURING COMPANY  
Hartford 2, Connecticut, U.S.A.

*Never before on a Power Plane...  
a motor that spins at  
25,000 RPM!*



**CASE HISTORIES FROM  
MT. VERNON FILES**

No power plane before this Porta-Plane\* has ever used such a high speed motor. And when any manufacturer is out to break all precedents, and still sell his product at a low price, he needs every bit of designing and production skill he can find—anywhere.

This manufacturer found these in generous abundance at Mt. Vernon. The 8 principal parts of the frame of the Porta-Plane were designed to obtain the special advantages of die casting: thin wall sections of great strength and rigidity, negligible machining, smooth finish, high speed production, low cost.

This important advantage—low cost—stems directly from the way we are organized here at Mt. Vernon. From die cast to finished casting, Mt. Vernon has both the complete die casting service and the facilities it takes to produce parts like these at minimum cost in any quantity. We have 162,000 square feet of the most modern equipment for making dies and for die casting aluminum and zinc. Mt. Vernon service com-

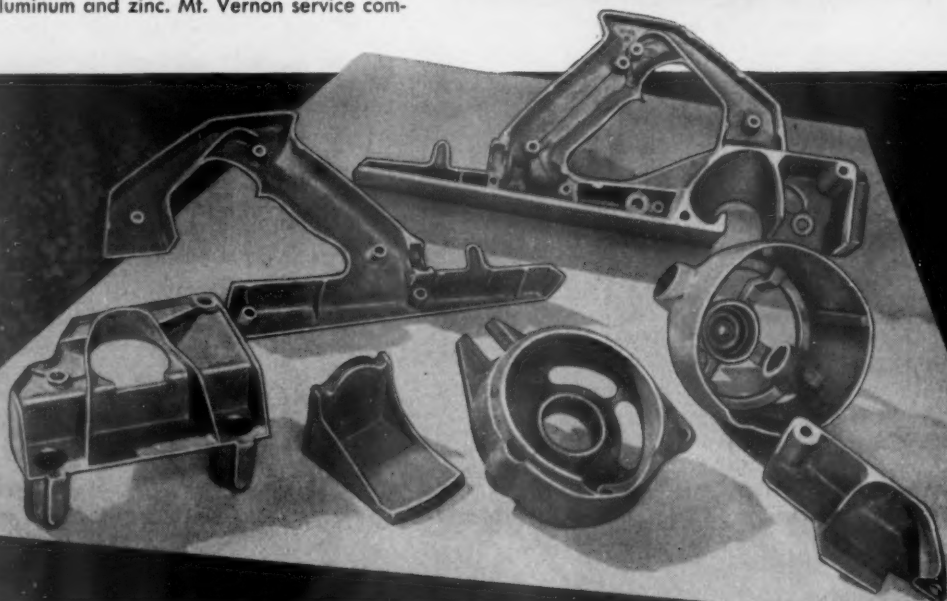
prises completely coordinated designing, die-making, casting, and machining, all under one roof.

It will pay you to bring your production specifications to us. We may show you, as we did Porter-Cable, the way to important cost reductions and improved products.



**MT. VERNON**  
**DIE CASTING CORP.**

STAMFORD, CONNECTICUT



For More Information Circle No. 351 on Inquiry Card—Page 17

**Behr-cat tapes serve industry everywhere!**



Behr-cat No. 113 Masking Tape — for masking treated metal surfaces.



Behr-cat No. 121 Flatback Masking Tape — for straight-line masking.



Behr-cat No. 109 Masking Tape—crepe back for general purpose use.

## TAPING OUT THE SHAKE, RATTLE AND ROLL

BEHR-CAT MASKING TAPE No. 111 is a natural for holding doors, drawers and movable parts secure and safe during shipment. Whether the job is holding, as this one illustrated in the photo above, or protecting, sealing, stripping, or a multitude of other operations, Behr-cat Masking Tapes are tops for production-boosting and cost-saving.

The Behr-cat Tape Brochure is full of similar application illustrations.

For your copy, write Behr-Manning, Troy, N. Y., Dept. BW-2.

In Canada: Behr-Manning (Canada) Ltd., Brantford.  
For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.



T-1

**BEHR-MANNING**

*division of NORTON Company*

▲ COATED ABRASIVES  
▲ SHARPENING STONES  
▲ PRESSURE-SENSITIVE TAPES



# Teflon...\*

**Your Best  
Source Is**

**JOHN CRANE**

Thickness Inches	Nominal Size
1/16	12 x 12
3/32	18 x 18
1/8	24 x 24
3/16	36 x 36*
1/4	48 x 48*
3/8	
1/2 & Up	

\* Can be furnished  
in 1/2 sheets

**SHEET**

**HERE'S WHY:** You can order in quantity and in a wide variety of sizes—and be certain of complete uniformity throughout. Our strict density control assures you thoroughly non-porous Teflon—free from any flaws which might possibly affect your end use or product. Dimensions are accurate to your most critical tolerances—no rejects, waste of material or loss of time. You get product purity—Teflon at its best in every one of its remarkable characteristics. Delivery is prompt—you get the quantity you want when you want it.

Since the availability of Teflon, "John Crane" engineers have worked with Industry to successfully solve innumerable problems and develop new applications. *You can benefit from their experience and know-how.*

DIAMETER INCHES	
1/4	1
3/8	1 1/8
1/2	1 1/4
3/4	1 3/4
1	2
1 1/4	2 1/4
1 1/2	2 1/2
1 3/4	3

Other diameters  
on specification

**ROD**

TYPICAL SIZES INCHES	
O. D.	I. D.
3/8	1/4
1/2	3/8
3/4	1/2
1	3/4
1 1/2	1
2 1/2	1 1/2
3	1 3/4

**TUBING**

## Characteristics of Teflon

- CHEMICAL**  
Completely inert.
- ELECTRICAL**  
Very high dielectric strength.  
Extremely low power factor.
- THERMAL**  
Temperature range  
-300° to +500° F.
- MECHANICAL**  
Strong, flexible, weather  
resistant.
- LOW COEFFICIENT OF FRICTION**  
Absolutely non-stick.

\* DuPont Trademark

Request full information and ask for our bulletin, The Best in Teflon. Crane Packing Co., 6465 Oakton St., Morton Grove, Ill., (Chicago Suburb). In Canada: Crane Packing Co., Ltd., Hamilton, Ont.

**JOHN CRANE**

**CRANE PACKING COMPANY**

38 YEARS  
INDUSTRIAL PROGRESS

For More Information Circle No. 353 on Inquiry Card—Page 17

suppliers

Westinghouse Electric Corp., Pittsburgh, has announced two new appointments. R. J. Sargent has been named general manager of the major appliance division, a newly created division within the corporation's electric appliance group. And, Chris J. Witting, formerly president of the Westinghouse Broadcasting Co., has been appointed general manager of consumer products.

Robert A. Hummert is now Chicago district sales manager for DeWalt, Inc., Lancaster, Pa. His



R. A. Hummert

territory covers Cook, Lake, McHenry, DuPage, Kane, Kendall and Will counties in Illinois.

Punch Products Corp., Niagara Falls, N.Y., has appointed Edmund J. Klonowski as western New York representative.

Tech-Art Plastics Co., Morristown, N.J., custom plastics molders, has appointed William J. Woodruff as sales manager.

Wylie D. McGaffic has been made Buffalo district sales manager for National Electric Products Corp., Pittsburgh.

Robert R. Clark has been appointed headquarters district manager for Standard Tool Co., Cleveland.

Now the finest of needle valves is available



## 416 Stainless throughout...

In the Marsh Needle Valve, operating men found a valve that was better all the way through. Then came the call for a valve of like quality and precision for corrosion service . . . to be 416 stainless throughout.

The valve illustrated here is the answer. Like the parent valve, this new valve has safety and strength to spare . . . guaranteed for working pressures up to 10,000 psi . . . equally efficient and effective in any lower pressure range.

It too is machined from solid bar stock—in this case, 416 stainless steel. Its precision-ground and-machined stem is hardened 416 stainless. Packing is the special "Marpak" ring . . . one-piece, non-binding, long-lasting. So finely built is this needle throttling and cut-off valve that it can be easily throttled down to exceptionally fine regulation even on extreme pressure.

Read the list of features opposite. Then write for new bulletin No. NV-2 containing complete details.

The new all stainless valves (Series 1924) includes globe and angle patterns with double female connections in sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1"; also globe and angle valves with male inlet and female outlet in sizes  $\frac{1}{4}$ " and  $\frac{1}{2}$ ".

**MARSH INSTRUMENT CO.** Dept. G, Skokie, Ill.  
Sales affiliate of Jas. P. Marsh Corp.

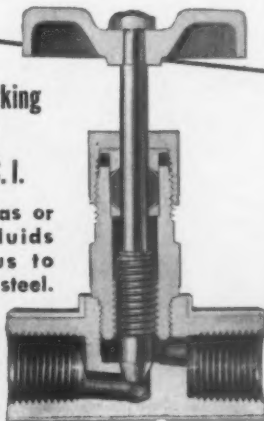
Marsh Instrument & Valve Co. (Canada) Ltd.  
8407 103rd Street, Edmonton, Alberta, Canada  
HOUSTON BRANCH PLANT: 1121 Rothwell Street, Sect. 15, Houston, Texas

### 416 Stainless Steel ...all the way through!

- Body and stem guide machined from bar stock.
- Valve stem, hardened stainless.
- Packing, special Marsh "Marpak" moulded ring.
- Fine stem threads for strength and precision throttling.
- Deep inlet and outlet thread chambers.
- Bodies marked in accordance with MSS regulations.

Maximum Working  
Pressure  
10,000 P.S.I.

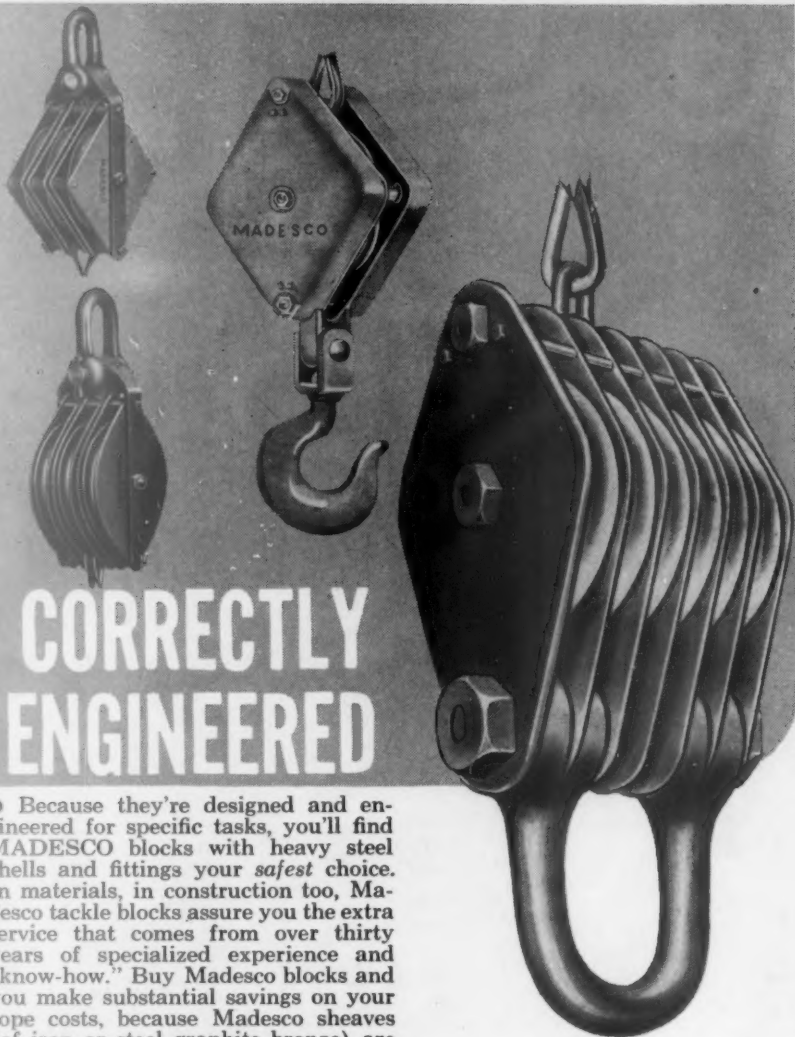
Water, oil, gas or  
corrosive fluids  
not injurious to  
416 stainless steel.



# MARSH

"THE STANDARD  
OF ACCURACY"

# Cuts Your Cost for EVERY TACKLE BLOCK JOB



**CORRECTLY  
ENGINEERED**

● Because they're designed and engineered for specific tasks, you'll find **MADESCO** blocks with heavy steel shells and fittings your *safest* choice. In materials, in construction too, Madesco tackle blocks assure you the extra service that comes from over thirty years of specialized experience and "know-how." Buy Madesco blocks and you make substantial savings on your rope costs, because Madesco sheaves (of iron or steel graphite bronze) are correctly-grooved to prolong rope-life. Loads travel smoothly, easily, quickly to save lifting time; that means savings too that come from minimized maintenance and down-time. There's a complete line of Madesco tackle blocks for every need. Consult your industrial distributor—and meantime write for our catalog.

**MADESCO TACKLE BLOCK CO., Easton, Pa.**

**MADESCO  
BLOCKS**

## SPECIAL FORGINGS

are also available for varied needs. Write us. Remember too, we quickly furnish

## SPECIAL BLOCKS FITTINGS REPLACEMENT SHEAVES

designed, engineered and load-rated to your specifications.

**WORTH ASKING FOR—  
BY NAME**

HAE—MA—183 156

For More Information Circle No. 355 on Inquiry Card—Page 17

suppliers

Don P. Carr has been appointed assistant to the manager of the **Tool Steel Sales Division, Crucible Steel Co. of America, Pittsburgh.** He will be responsible for tool steel sales in Crucible's west coast sales division. He will headquarter in Los Angeles.

**American Buff Co., Chicago,** has made Louis C. Sarelas its sales representative for the New England area.

The new general sales manager of **Tuthill Pump Co., Chicago,** is A. L. Caney.

Robert F. Schultz, former manager of **Ingersoll Kalamazoo Division, Borg-Warner Corp., Chicago,** is now vice president and manager.

The **Taft-Peirce Mfg. Co., Woonsocket, R.I.,** has named Acme Tool & Supply Co., San Diego, Calif., as its representative in that area.

**Woods Aircraft Supply, Burbank, Calif.,** has been appointed an authorized distributor for **U. S. Relay Co., Los Angeles.**

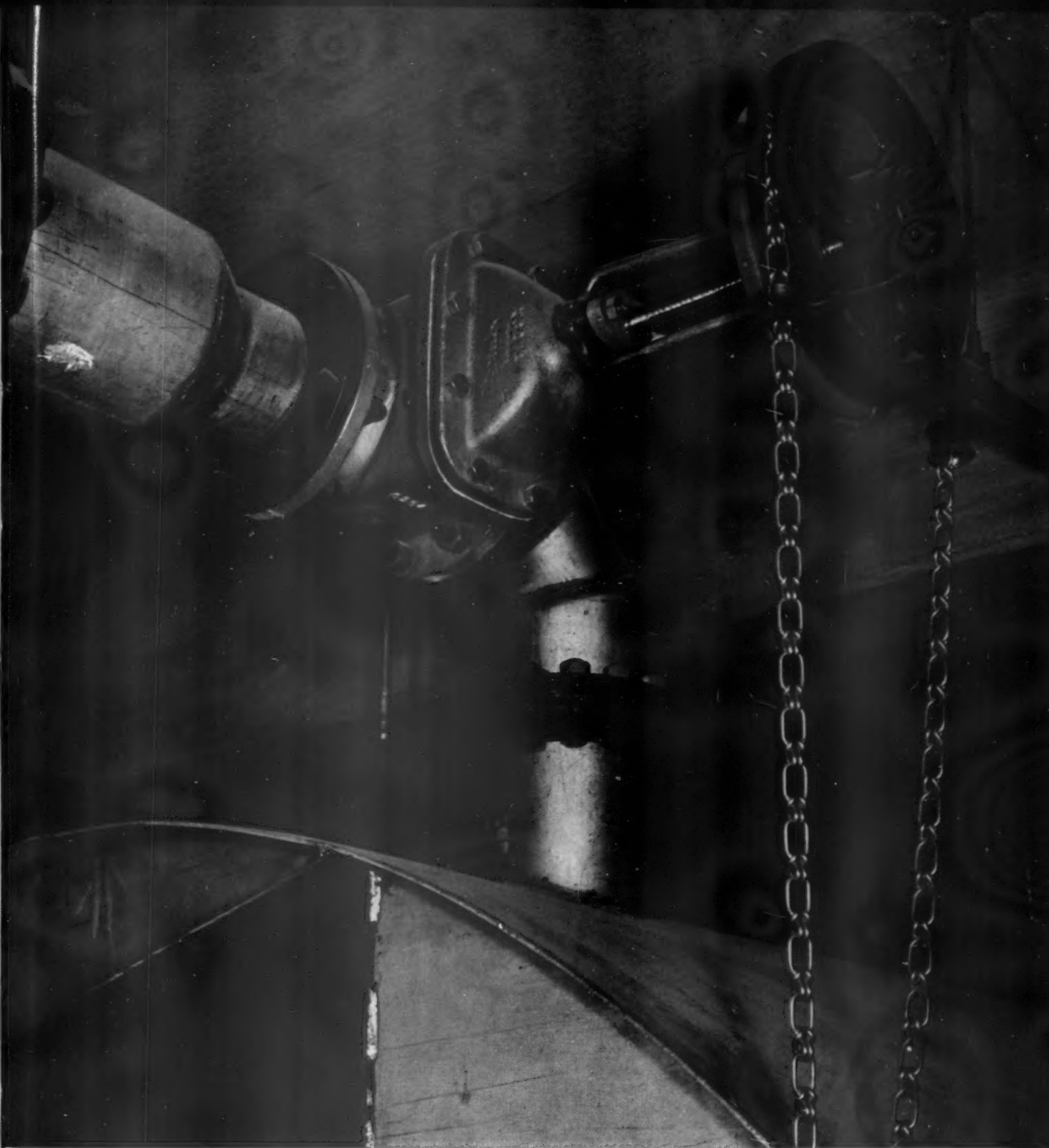
**Huck Mfg. Co., Detroit,** has named Donald R. Helson as assistant sales manager.

The **Rockbar Corp., New York,** has been made a representative for **Holtzer - Cabot Motor Division, National Pneumatic Co., Inc., Boston.** Rockbar will cover southern New York, northern New Jersey, and Fairfield County, Conn.

Albert C. Cereghino has joined the **Trendex Division, The Hum-Ko Co., Memphis, Tenn.,** as head of sales and product development of Trendex fatty acids and glycerides in New York, Philadelphia and Boston.

For More Information Circle No. 356 on Inquiry Card—Page 17→  
**PURCHASING**





## Film censor at work

At 950-acre Kodak Park, the film-producing plant of Eastman Kodak Co. in Rochester, N. Y., they take no chances on film contamination.

For example, in the operation shown here, a red-wheeled Alloyco stainless steel valve rules out of the picture dangerous rust and iron contaminants which would spoil the thick fluid which is called "dope." These valves control the flow of dope onto

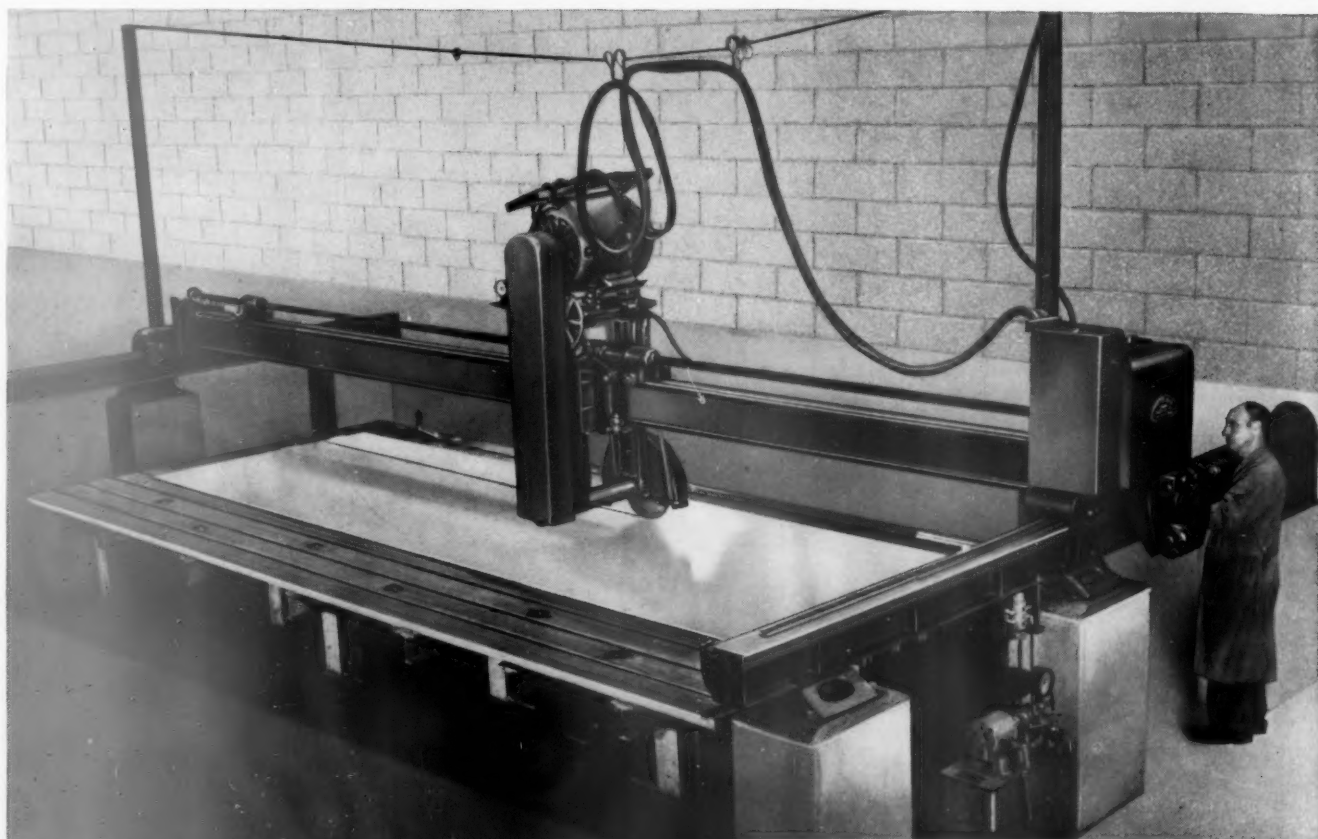
roll-coating wheels, where solvents are driven off with heat. The dry film base is then readied for the final coat of emulsion.

Today thousands of industrial processes are being safeguarded by Alloyco corrosion and contaminant resistant valves. Find out why their dependable performance makes them first choice for all types of vital flow lines. Write Alloy Steel Products Co., Inc., 1301 West Elizabeth Avenue, Linden, N. J.



Subsidiary of Walworth Company

# FRASSE INSTALLS HUGE ABRASIVE PLATE SAW...



Large plates (up to 240" long) can be cut on this new Frasse abrasive saw. This means fewer welds . . . lower labor costs . . . and a more saleable product.

This huge new abrasive saw . . . a giant in performance as well as size . . . enables Frasse to cut stainless steel and aluminum plates "to-order" from standard stock sizes. With it, plates up to 240" long can be cut—close tolerances can be kept — and square, smooth edges, suitable for most applications without further finishing, can be obtained.

To the fabricator, this means plate deliveries need no longer bottleneck production . . . inventories can be reduced . . . and edge finishing costs may be cut or wiped out completely, simply by phoning Frasse.

So, for dependable service, quick delivery . . . and a product that can contribute to your profit — depend on Frasse. A choice source for your stainless steel and aluminum requirements.

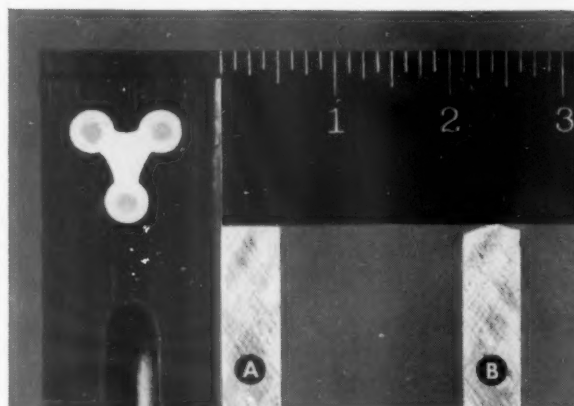
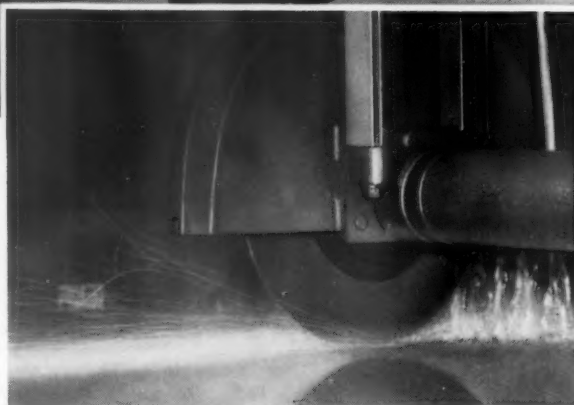
**Call FRASSE 1<sup>st</sup>**

**For STAINLESS STEEL and ALUMINUM PLATES**

Peter A. **FRASSE** and Co., Inc.

17 Grand Street • New York 13, New York • WALKer 5-2200  
PHILADELPHIA • BUFFALO • SYRACUSE • HARTFORD  
LYNDHURST • ROCHESTER • BALTIMORE

For More Information Circle No. 357 on Inquiry Card—Page 17



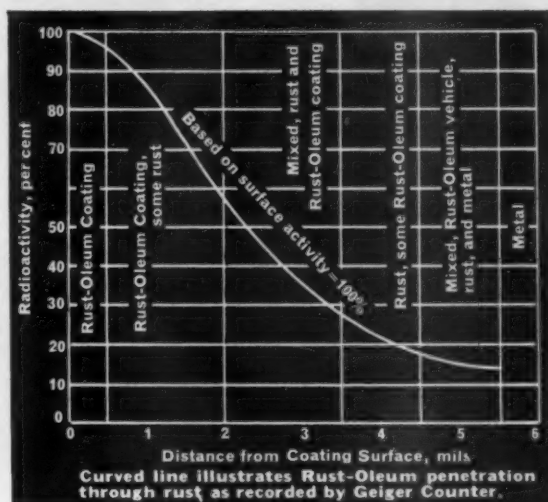
Abrasive cutting offers a superior edge that will in most cases reduce edge finishing costs. Note (a) cut on the new Frasse abrasive saw, (b) cut on a conventional shear.

# RUST-OLEUM®

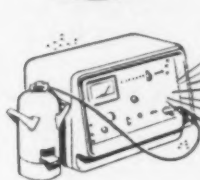
# PENETRATION

through rust to bare metal traced by Geiger Counter. To effectively stop rust—the vehicle of a protective coating, when applied over a sound, rusted surface—must penetrate through the rust down to bare metal. **Rust-Oleum does exactly that!—as proved by radioactive research!** Rust-Oleum's specially-processed fish oil vehicle was radio-activated and formulated into Rust-Oleum 769 Damp-Proof Red Primer—then applied to rusted test panels. Penetration through rust to bare metal by Rust-Oleum's specially-processed fish oil vehicle was then traced by Geiger Counter.

You stop rust, because Rust-Oleum's fish oil vehicle soaks deep down to bare metal and into the tiny pits where it drives out air and moisture that cause rust. You save, because this same penetration enables you to apply Rust-Oleum directly over rusted surfaces—usually eliminating costly surface preparations. Attach coupon to your letterhead for your thirty-page report entitled, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared by Battelle Memorial Institute technologists.



There is only one Rust-Oleum. It is distinctive as your own fingerprint. Accept no substitute. Buy—and, specify only Rust-Oleum. You'll be happy that you did.



Rust-Oleum is available in practically all colors, including aluminum and white.

Your nearby industrial distributor maintains complete Rust-Oleum stocks for your convenience.

# RUST-OLEUM®



## STOPS RUST!

See our Catalog in Sweets, or write for complete information.

ATTACH TO YOUR LETTERHEAD—MAIL TODAY

Rust-Oleum Corporation  
2431 Oakton Street  
Evanston, Illinois

- ☐ Complete literature including color charts.
- ☐ Thirty-page report on Rust-Oleum penetration.
- ☐ Nearest source of supply.





# KEYSTONE *XL* COLD HEADING WIRE



*flowability*

IS THE SECRET

**282%**  
**MATERIAL**  
**SAVED...**

**USING KEYSTONE**  
***XL***  
**COLD HEADING WIRE**

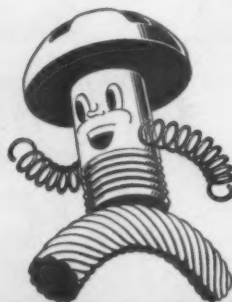
This circuit breaker part was machined at one time. But, cold-heading experts analyzed its design and decided that it could be successfully formed from Keystone "XL" Cold Heading Wire. The result—a material waste reduction from 75% to 7%—and a saving of 282% in steel, plus faster, lower cost production and a finished product that is stronger and free from defects.

Keystone "XL" Cold Heading Wire is not just ordinary cold heading wire. It is wire made to your specific order to exactly solve your difficult cold heading problems. Special drawing, annealing and coating "secrets" produce a wire of exceptional *flowability*. Originally developed for recessed head screws, Keystone "XL" Wire is now widely used to solve many of the toughest cold heading problems at great savings in time and money.

## SEND FOR FREE "COLD HEADING" BOOKLET

Get your copy of a new, valuable reference book containing many technical and informative facts about the modern cold heading process. Remember, too, that Keystone specializes in all types of wire for all types of industrial needs. Write us about your need!

KEYSTONE STEEL & WIRE COMPANY, PEORIA 7, ILLINOIS



**KEYSTONE WIRE for Industry**

For More Information Circle No. 359 on Inquiry Card—Page 17

suppliers

The Grinding Machine Division, Norton Co., Worcester, Mass., has named F. Kenwood Jones as chief sales engineer. He succeeds Howard P. Chace, who has retired.

The Yale & Towne Mfg. Co., Philadelphia, has appointed Paul R. Minich, Jr., as general sales



P. R. Minich

manager for its Materials Handling Division. In order to adequately administer the division, Joseph J. Murray has been named to the newly created post of assistant general sales manager.

Iron City Tool Works, Inc., Pittsburgh, has named Thomas J. Dempsey, Jr. as vice president—sales, and Charles J. O'Mahony as Pittsburgh sales representative.

Ingersoll Kalamazoo Division, Borg-Warner Corp., Kalamazoo, Mich., has announced that David H. Cissna has joined the organization as director of sales, materials handling equipment.

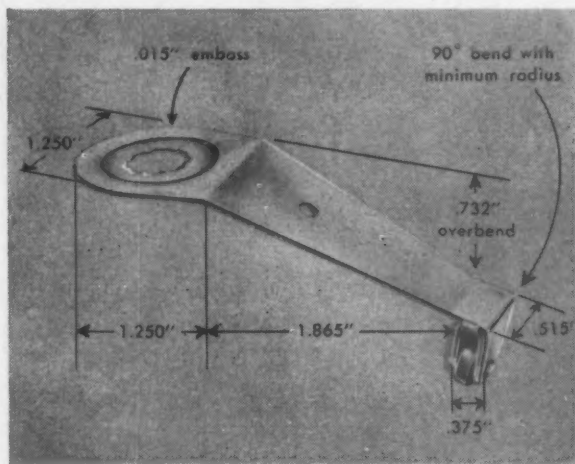
Robert Dilling is now a sales engineer in southern California for E. W. Bliss Co., Canton, Ohio.

C. F. Hegg has been named vice president of a new automotive sales division established by L. O. F. Glass Fibers Co., Toledo.

# This railroad runs better, will last longer



A Type ZW Lionel Trainmaster Control has four independent variable voltage circuits, can operate four trains simultaneously.



One of the four variable voltage taps in a Type ZW Lionel Trainmaster Control, now made of .0150" thick Duraflex in spring temper. This temper in Duraflex provides the extra strength needed—with the same forming properties as conventional phosphor bronze in extra hard temper.

## Lionel switched to **DURAFLEX** for the hardest working parts of its Trainmaster controls

Much of the fun of model railroading depends on the smooth, dependable performance of its controls. That's why Lionel makes its Trainmaster controls tough, precision instruments—constantly guards their quality.

Lionel had been using an ordinary phosphor bronze in the vital, hard-working variable voltage taps. But they were troubled with fractures in forming the bends. To maintain their quality standards, they considered using another alloy, at substantially increased cost.

First, however, they tried Duraflex\*, Anaconda's new superfine-grain phosphor bronze. The fractures were eliminated. The press room found the forming qualities of Duraflex excellent. The Transformer Department was pleased with the reduction in rejects, found the strength and resilience better.

So Lionel has controls of superior quality—at no extra cost—for Duraflex costs no more than ordinary phosphor bronze.

Duraflex, because of its superfine-grain structure, offers greatly improved fatigue resistance and formability. It also has a finer, smoother, harder surface, plus good electrical conducting properties and high corrosion resistance. It is produced in sheet metal up to 0.062" thick and in wire up to 3/16" diameter. We will provide free samples for test purposes—specify gage and temper. Write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

\*Trade Mark

5000

# DURAFLEX

**The New Superfine-Grain Phosphor Bronze**

**with 30% Greater Endurance Limit**

an **ANACONDA**® product

# ALONG THE WAY... OF **TWA**



## **TWA** ADDS **5** MAJOR MARKETS to its Coast to Coast Constellation Routes

Now for the first time TWA offers a direct, one-carrier service linking Tulsa, Oklahoma City, Denver, Cleveland and Detroit with both east and west coasts as well as principal trading centers in Europe, Africa, Middle and Far East.

Addition of these 5 all-star markets to the vast network of TWA's domestic and overseas routes enables shippers to become a closer part of leading

markets everywhere.

Send a memo to your shipping department or, better still, phone the Cargo Consultant at any TWA office. Ask for complete information on low rates, frequent schedules, economical routings that best meet your needs. No obligation, of course. You'll like the way of TWA. It saves you time... work... money. Better call today.



*All TWA Flights carry Air Mail,  
Air Freight and - in U.S.A. - Air Express*

**TWA**  
TRANS WORLD AIRLINES  
U.S.A. · EUROPE · AFRICA · ASIA



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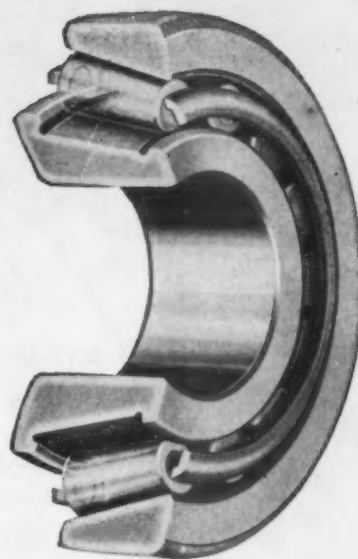
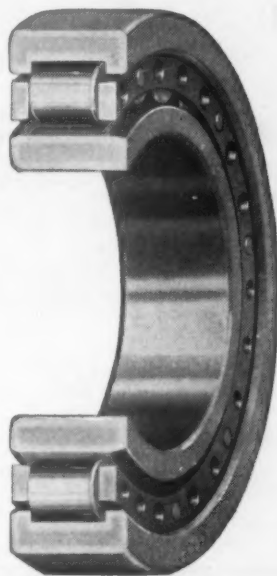


**WHATEVER YOUR ROLLER  
BEARING APPLICATION**

# specify BOWER!

Earthmovers, jet turbine engines, rolling mill equipment, truck axles—you name it! Bower builds a complete line of tapered, straight and journal roller bearings including a size and type to fit *your* product. What's more, these dependable bearings have *proved* themselves in virtually every conceivable type of application. Their built-in quality, skillful engineering and advanced design features provide such important bearing advantages as reduced wear, longer life and lower maintenance requirements. Let a Bower engineer give you full details on the complete Bower line.

**BOWER ROLLER BEARING DIVISION**  
Federal-Mogul-Bower Bearings, Inc., Detroit 14, Mich.

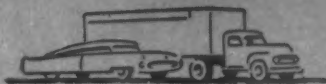


**BOWER TAPERED ROLLER BEARINGS INCORPORATE ADVANCED SPHER-O-HONED DESIGN!** Spherically generated roll heads and higher flange with larger, two-zone contact area reduce wear, improve roller alignment and virtually eliminate "end play." This helps hold adjustment and pre-load longer and better. Larger oil groove provides positive lubrication.

**BOWER STRAIGHT ROLLER BEARINGS ARE BUILT TO CARRY MAXIMUM LOADS!** Integral two-lip race increases rigidity—keeps rollers in proper alignment at all times. Steel cage allows free movement of rollers between races during normal operation. High-grade alloy-steel rollers and races are precision-ground for quieter, smoother operation.

**A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS**  
for every field of transportation and industry

**AUTOMOTIVE**



**RAILROAD**



**FARM**



**AIRCRAFT**



**EARTHMOVING**



**INDUSTRIAL**



# BOWER

**ROLLER BEARINGS**



For More Information Circle No. 362 on Inquiry Card—Page 17



*Special Washers*

ANY METAL • ANY SIZE  
ANY QUANTITY

Over 15,000 Sets  
of tools at  
your disposal

**THE EoMaster Products co.**

6400 PARK AVENUE • Diamond 1-1740 • CLEVELAND 5, OHIO

For More Information Circle No. 329 on Inquiry Card—Page 17

## HOT DIP GALVANIZING

...EXCELLENT FACILITIES  
for PICKLING & OILING

Our Record: Over 50 years of progressive galvanizing service to manufacturers and fabricators of iron and steel products . . . any size or shape, any size order from the smallest to the largest. Excellent facilities for pickling and oiling.

**"TO ECONOMIZE,  
GALVANIZE AT  
ENTERPRISE"**

**ENTERPRISE  
GALVANIZING CO.**

2519 E. CUMBERLAND STREET  
PHILADELPHIA 25, PENNSYLVANIA

For More Information Circle No. 330  
on Inquiry Card—Page 17

USER SAYS TAP LIFE UP 43%  
ON THIS THIN-WALLED CASTING



...thanks to

**FERROCARBO®**

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 36, Niagara Falls, N.Y. 64-56

**CARBORUNDUM®**

For More Information Circle No. 331  
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## suppliers

Carl Halpin has joined Lunn Laminates, Inc., Huntington Station, N. Y., as a sales engineering representative. He will operate in the Detroit area, developing reinforced plastics applications in the automotive, electrical and associated industries.

Richard H. Bruce has been appointed manager, Molding Materials Division, for the Bakelite



R. H. Bruce

Co., a division of Union Carbide and Carbon Corp., New York. He is responsible for the sale of the company's plastic molding materials.

Walfrid H. Johnson and Arthur W. Bailey have been named sales representatives to the Metals Division field force of Olin Mathieson Chemical Corp., New York. Mr. Johnson, headquartering in the Long Island sales office, will handle brass products, both strip and fabricated, in the New York-New Jersey area. Mr. Bailey will headquarter in Milwaukee and sell similar items. He will cover southern Wisconsin, northern Illinois and eastern Iowa.

Nutting Truck and Caster Co., Faribault, Minn., has named Marshall A. Larson as exclusive representative for the Des Moines area. The area includes most of Iowa and the western part of Illinois.

PURCHASING

# What's new in PETROLEUM?

There's a lot that's new to you in petroleum if you haven't kept pace with recent developments. For improvements come so rapidly in this progressive industry that it's difficult to keep abreast of them.

Improved motor oils, cleaner burning fuels, more effective rust preventives—these are a few of the developments that may find profitable application in your plant or business enterprise.

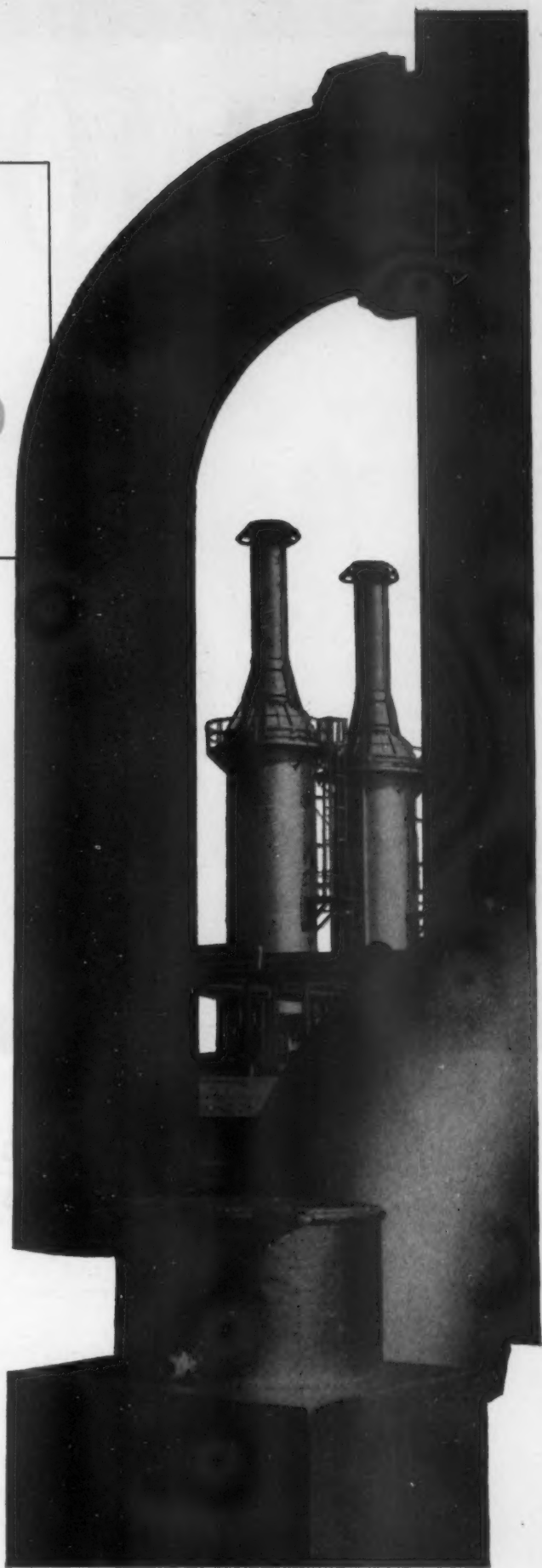
One man who keeps abreast of developments in petroleum science is the Gulf Sales Engineer. This trained specialist can help you find opportunities for important savings in operating and maintenance costs through the use of the most suitable fuels, lubricants, solvents, waxes, and process oils.

Why not get in touch with a Gulf Sales Engineer today? Consult the telephone directory for the number of your nearest Gulf office. Gulf Oil Corporation • Gulf Refining Company, 1822 Gulf Building, Pittsburgh 30, Pa.



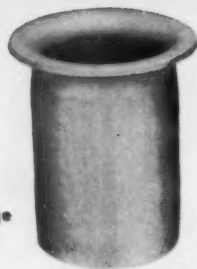
THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

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# CONTOUR-WELD



Flare and Flange



Pressure (Tubing)

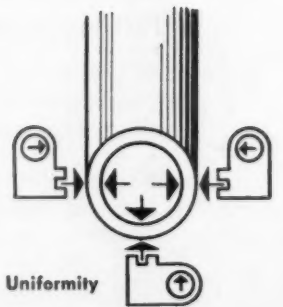


Flattening

**CONTOUR-WELD PIPE...BEST**  
**BY ANY TEST YOU CAN NAME**



Reverse Bend ( $2\frac{3}{8}$ " O.D. x .154 Wall)



Uniformity

# new stainless pipe

**with a weld so smooth you can't even feel it**

Run your finger over the weld area inside Trent's new *Contour-Welded*\* pipe. We doubt if you can even feel the weld. It's that smooth! There's no weld bead . . . no undercut . . . no place for corrosion or erosion to get a start.

Here's the reason: *Contour-Welding* is an entirely different method of producing welded pipe and tubing. It puts gravity to work to pull down the molten weld-metal to conform with the exact contour of the pipe. That means a smooth, clean weld practically indistinguishable from the pipe itself.

#### **Contour-Weld Means Trent's Better Than Ever**

As always, this new TRENTWELD pipe and tubing is made from uniformly rolled stainless strip. Wall thickness is always the

same throughout the pipe . . . and *Contour-Welding* brings this same high uniformity to the weld zone itself. All this, plus Trent's superior cold-working methods, gives you a stronger pipe or tube, with smoother flanged or flared ends.

Try new TRENTWELD pipe or tubing on your next job. It's available in any gage, for all applications including high-pressure hydraulic lines . . . high-velocity systems . . . lines carrying corrosive chemicals. And new *Contour-Welded* tubing is available in most grades, including Hastelloy, Zirconium, Zircoloy, Titanium and 19-9-DL. You'll find that TRENTWELD can't be beat by any other pipe — welded or not.

\*Contour-Weld is the trade mark of the Trent Tube Company for its process of welding pipe and tubing which is protected under U.S. Patent 2,716,692.

#### **Why Trent's Exclusive Contour-Weld Process Means Smoother Welds . . .**



Normally, in producing welded pipe, the weld is made at the top. But gravity plays a nasty trick. It tugs at the fluid metal in the weld zone, pulling it down toward the middle of the pipe. The result, particularly in the heavier gages, is a perceptible bulge where it hurts the most — right on the I.D. surface. If you try to get rid of the bulge — at fair cost — the metal is undercut — and corrosion and erosion start there.



But Trent put a stop to that — simply by going into partnership with gravity. With their exclusive *Contour-Welding* process, they weld at the bottom — and gravity works for them. For then, the bulge is in the opposite direction — blending in perfectly with the contour of the pipe itself.

## TRENTWELD

### **STAINLESS STEEL TUBING**

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

For More Information Circle No. 364 on Inquiry Card—Page 17

## Cure Costly Fluorescent Flickers



with  
**G-E**  
**Watch Dog\***  
**STARTERS**

Dithering, flickering fluorescent lamps are costly — *even more than human fatigue is involved.* Lamp ballasts and starters also are being overworked.

G-E Watch Dog starters *stop* this waste. When a lamp reaches the end of its useful life and starts to flicker, the Watch Dog starter automatically cuts it out of operation until it is replaced with a new lamp.

Moreover, one Watch Dog starter outlasts up to 10 ordinary starters. And for pennies more, lamp life will actually be increased as much as 25% to 50% with the NEW FS-400 Watch Dog Starter. Wiring Device Department, General Electric Company, Providence 7, R. I.

\*Registered Trade-mark of General Electric Co.

**GENERAL  ELECTRIC**

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## suppliers

George W. Newland is now central division sales manager of the **Walworth Co., New York.** His headquarters are in Pittsburgh.

The appointment of Napier B. Caldwell as sales manager for the Boston plant has been announced by **Joseph T. Ryerson & Son, Inc., Chicago.**

Vincent V. Tivy, former manager of refinery instrument sales for the **Foxboro Co., Foxboro, Mass.,** has been appointed the firm's chief application engineer. He is responsible for coordinating sales engineering with product development and production engineering activities.

A realignment of sales organization has been announced by the **Polychemicals Department, E. I. duPont de Nemours and Co., Inc., Wilmington.** Elmer F. Schumacher continues as general director of sales, but now has two directors of sales under him. John H. Daughtridge will oversee the sales and technical service organization concerned with chemicals like methanol, ammonia, Zerone and Zerex anti-freezes, nitrogen products and other such products of high-pressure synthesis, Russell C. Weigel will be in charge of the sales and technical sales service organization concerned with plastics like Alathon polyethylene resin, Butacite polyvinyl butyral resin, Lucite acrylic resin, Plastacele cellulose acetate plastic, Teflon tetrafluoroethylene resin, and Zytel nylon resin. To aid Mr. Daughtridge, Arthur M. Cole has been appointed assistant director of sales. And, under Mr. Weigel is Jerry D. Shaw, also now assistant director of sales. Mr. Shaw is concerned with Teflon, Tynex, Butacite, and Plastacele. C. D. Bell continues as assistant director under Mr. Weigel for Lucite, Zytel and Alathon.



**DON'T GIVE ME  
THAT!**

## YOU CAN'T BEAT GARRETT SERVICE

I'm not a wise guy, but I do know about the service these Garrett plants give you. Seems hard to believe. Those fellows bend over backwards to help you out in an emergency. And their regular service means you always get deliveries when promised ... sometimes before.

Of course, when it comes to quality they are tops on lock washers, flat washers, spring washers, hose clamps, stampings and assemblies. They have three plants equipped with the most modern high-speed automatic machinery to turn out billions of parts to exact specification ... complete heat treating, plating and finishing facilities. If you don't believe me, next time send your order into Garrett. You'll see why their customers say **YOU CAN'T BEAT GARRETT.**

**LOCK WASHERS  
FLAT WASHERS  
HOSE CLAMPS  
STAMPINGS**

*Manufactured by*

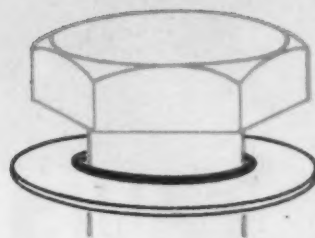
**GEORGE K. GARRETT CO., Inc.**  
Philadelphia 34, Pa.



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end leakage...have lock  
washer action with  
**Precision**



**Dyna-seals**

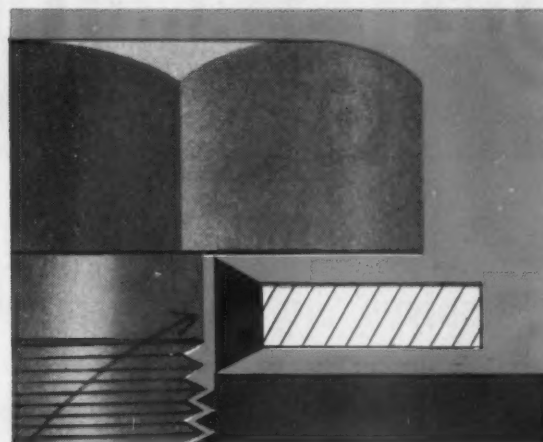
**Seal up to 10,000 psi  
steady or pulsating pressure**

Here is today's answer to leakage problems created by face-to-face sealing. Dyna-seals not only completely eliminate leakage but make possible important reductions in tooling, installation and maintenance costs.

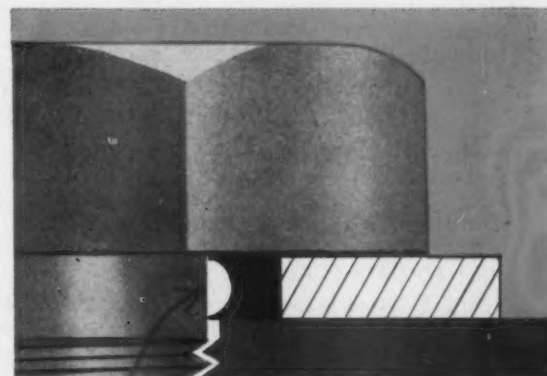
The secret of Dyna-seal success is a synthetic rubber sealing member, heat and pressure bonded to a steel washer. It supplies a positive lock washer action and reduces bolting torque. Under pressure, the flexing action of Dyna-seal assures a positive seal under all conditions—against water, gasses, petroleum products and many other fluids.

Dyna-seals permit face-to-face sealing with no grooves to cut or special machining of surface to be sealed. Here is simplicity in assembly that reduces fabrication costs and improves product appearance as well.

Use Dyna-seals on any flat surface under bolt or rivet heads, cap nuts, flanges, special fittings, etc. Let a Precision engineer work with you and demonstrate the advantages of putting Dyna-seals into your products.



Note flare of rubber sealing member. When compressed under any type of bolt, flange or screw, it provides positive lock washer action, and reduces bolting torque.



When pressure of bolt head is applied, sealing lips are forced against surface, forming a convex shape opposing steady or pulsating pressure. Dyna-seal provides positive sealing against leakage.

**Precision Rubber Products**  
**CORPORATION**  
**"O" Ring and Dyna-seal Specialists**

**Dept. P, Oakridge Drive, Dayton 7, O. Canadian Plant at: Ste. Thérèse de Blainville, Québec**

For More Information Circle No. 367 on Inquiry Card—Page 17



# WELDING SOLVES ANOTHER WEIGHT PROBLEM

## (and USS "T-1" Steel solves the welding problem!)

Bedplates for modern color-printing presses have to be rugged—but as lightweight as possible. They must withstand constant pounding from printing rollers and cutting knives. And, since they move back and forth continually, they've got to be lightweight for fast, efficient operation. It is a good place to use a welded assembly of steel plate.

But that's where Graver Tank & Manufacturing Co., Inc., ran head-on into a tough fabrication problem. Alloy steel with the necessary strength and durability was difficult to weld. And with 534 welds to make on *every* bedplate, this was a king-size headache.

### NO MORE HEADACHE!

Now the headache is gone. Production costs are down. And the finished bedplates are working hard and long . . . taking a tremendous daily pounding without distortion.

The solution? Just a switch to a remarkable *new* alloy steel, USS "T-1" Steel.

"T-1" Steel is very strong. Very tough. Able to take vicious impact abuse. Yet, it's easy to weld," says Mr. H. McDonald, Superintendent at Graver.

### HOW ABOUT YOU?

If you have tough jobs, rugged jobs, where you want to weld your way to lower costs, give this new steel a try. We think you, like Mr. McDonald, will find it the best thing you have ever used. Right now, "T-1" is in service and doing well in bridges, power shovels, steam turbines, electrical transformer tanks, flywheels, pressure vessels, mine cars, and lots of other places. Write for details. United States Steel, Room 5189, Pittsburgh 30, Pa.

**"TOP QUALITY"** That's how Graver Tank & Manufacturing Co., Inc., East Chicago, Indiana, describes new USS "T-1" Steel. It gives them a yield strength of 90,000 psi . . . exceptional resistance to impact abuse . . . and good weldability. It enables them to build extremely rugged, all-welded bedplates for printing presses.



UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS **"T-1"** CONSTRUCTIONAL ALLOY STEEL



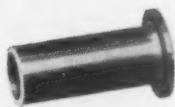
UNITED STATES STEEL

When the Specs call for

## WELDING FITTINGS



### YOUR B&W FITTINGS DISTRIBUTOR CAN SAVE YOU TIME AND MONEY



He carries and maintains a wide variety of sizes and types of B&W Seamless Welding Fittings for every requirement.

It's his business... a dependable source of supply... to serve you.

Contact your nearest B&W Fittings Distributor now.

For the name of your B&W Fittings Distributor, call any of these B&W Tubular Products Div. District Sales Offices:

Beaver Falls, Pa.	Detroit 26, Mich.	Philadelphia 2, Pa.
Boston 16, Mass.	Houston 19, Tex.	St. Louis 8, Mo.
Chicago 3, Ill.	Los Angeles 17, Calif.	San Francisco 3, Calif.
Cincinnati 6, O.	Milwaukee 46, Wis.	Syracuse 2, N. Y.
Cleveland 14, O.	New York 16, N. Y.	Tulsa 3, Okla.

THE  
NATURAL  
SOURCE FOR  
ALLOY  
FITTINGS



FA-5918

**THE BABCOCK & WILCOX COMPANY** Tubular Products Division — Fittings Department • 3839 W. Burnham Street • Milwaukee 46, Wisconsin

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FEBRUARY, 1956

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## Carpenter Begins Non-Destructive Testing of Stainless Tubing

High-speed, non-destructive testing of stainless steel tubing is now being done by Carpenter Steel Company. A new machine, now in operation at Carpenter's Alloy Tube Division, Union, N. J., is said to give closer and more critical quality control than ever before possible.



The unit, first of its kind to be installed in a tube mill, was developed after two years of research by Carpenter and Magnetic Analysis Corp., Long Island City, N.Y.

It inspects the inside and outside diameter surfaces of tubing along the full length and around the entire periphery. It also tests the complete wall thickness or sub-surface of material with walls up to .070". Under certain conditions, it will inspect the entire internal structure of even heavier wall tubing.

No other commercial test method, Carpenter says, is capable of defects such as those found by the new device at production speeds (approximately 250 ft. a minute.)

## Tips for Buying Cap Screws

Because assembly cost often counts more than the purchase (Please turn to page 286)

**PROTECTION** for an intricate part!

**Cleveland Containers** save you money in packaging large parts as well as smaller items.

Above is a metal end telescope container designed to package a rotary group for a hydraulic oil pump. Both ends of the shaft are further protected with paper tubes.

This style container has many uses for both heavy and light parts.

**SHOULDERS** to lean on!



Illustrated is an all-paper container with a die cut disc fitted into each of the paper cap ends. This is to accommodate a quantity of thin gaskets assembled over a paper tube for convenience in merchandising and protection in shipping.

Suitable for such items as rubber gaskets, washers, shims, rubber or wire coils.

WRITE for our complete Packaging Folder.

Why pay more? For good quality . . . call CLEVELAND!

**THE CLEVELAND CONTAINER COMPANY**

**6201 BARBERTON AVE., CLEVELAND 2, OHIO**

**PLANTS AND SALES OFFICES:**  
CLEVELAND  
DETROIT  
CHICAGO  
MEMPHIS  
LOS ANGELES  
PLYMOUTH, WIS.  
JAMESBURG, N. J.  
ODDENSEBURG, N. Y.

**ABRASIVE DIVISION CLEVELAND**

**SALES OFFICES:**  
NEW YORK CITY  
WASHINGTON, D. C.  
ROCHESTER, N. Y.  
WEST HARTFORD, CONN.

• ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LTD.  
Plants & Sales Offices: TORONTO AND PRESCOTT, ONT.      Sales Office: MONTREAL



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# TAPS *by Card*



When you specify Taps or Gages *by Card*, you know you're getting the finest. Card's long experience in the manufacture of precision tools is your guarantee of satisfaction. In every industry the superior performance of Card taps and gages is speeding production, helping to turn out better products faster.

Presenting the  
Symbol of Service

YOUR CARD DISTRIBUTOR



S. W. CARD MANUFACTURING CO., Mansfield, Massachusetts  
Division of UNION TWIST DRILL COMPANY

# GAGES *by Card*

TAPS • DIES • SCREW PLATES • GAGES

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FEBRUARY, 1956

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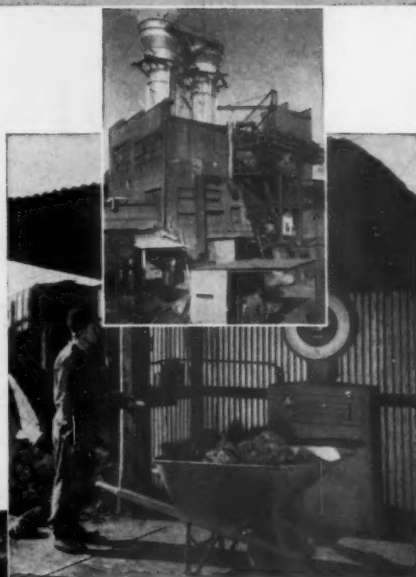
# CONTROLS THAT ASSURE QUALITY IN FOREST CITY GRAY IRON CASTINGS

• The kind of iron that goes into your castings when they are made by Forest City Foundries depends on more than meets the eye in this busy cupola-charging yard. There's no guesswork here. Raw materials such as pig iron, scrap iron, etc., are carefully weighed on automatic recording scales. In addition, our technicians conduct many important tests and controls to assure the quality of iron you specify, of which an example is the melting control report shown below.



These are only a few of the many controls that assure the high quality of Forest City castings.

To see how you can profit by having your gray iron castings made by Forest City Foundries, send us sketches, blue prints or samples for quotations.



Because the casting quality of iron depends to a considerable degree on the temperatures of the iron when melted and when poured into the molds, those temperatures are carefully controlled. Photograph at left shows the iron temperature being taken at the cupola spout with an optical pyrometer. Such readings are recorded every 15 minutes on various melt records to assure proper control of uniform casting quality.

DAILY MELTING REPORT						
CUPOLA No. <u>II</u>		DATE <u>2-15</u>		TONS CHARGED <u>151</u>		
MATERIAL CHARGED			SILICON		CARBON	
KIND	%	Lbs.	%	Lbs.	%	Lbs.
Northern Pig	90	750	2.35	17.63	4.00	30.00
Slivory Pig	7	175	8.38	14.67	7.00	3.50
Steel	18	450	0.06	0.27	.55	2.47
Remelt	34	850	2.35	19.98	3.39	28.82
Purch. Scrap	11	275	2.70	6.05	3.70	8.80
Brignter 3 pieces				3.00		
Totals	100	2500		61.60		73.99

## FOREST CITY FOUNDRIES Company

2222 WEST 27TH STREET CLEVELAND 13, OHIO  
TELEPHONE TOM 1-5040

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news

(Continued from page 284)

price of the fastener, purchasing agents should look to the assembled cost in selecting fasteners, advise Russell, Burdsall & Ward fastener specialists.

In selecting cap screws, for example, compare heat-treated and bright finish types on the basis of physical properties. Color signifies physical properties. Bright cap screws get their color and shiny appearance from cold working. For many applications, bright cap screws, with their close tolerances, accurate threads and excellent appearance, are ideal.


Black cap screws with three radial dashes on top of the head get their color—and their combination of strength and ductility—from their high-carbon content and from heat treatment. They afford greater toughness for jobs where high stresses will be encountered.

Heat-treated cap screws can stay tighter than bright cap screws, point out the R B & W technicians. Holding power of a fastener depends on residual tension, which is dependent upon tensile strength. High-carbon heat-treated cap screws, because they have greater tensile strength, are capable of being stressed much higher than bright cap screws. If a joint is loosening, often the cure can be found in a black heat-treated cap screw tightened to set up the correct residual tension.

Though initial cost of heat-treated cap screws is greater than the bright finished type, they can often cost less than bright ones, particularly if holding power is the important quality needed. For example, to obtain a safe working load of 20,000 pounds, you can use a 3/4-inch bright cap screw or a 5/8-inch black cap screw. The smaller screw, heat-treated, costs less than the larger bright one.

Correct use of cap screws in new equipment often permits re-  
(Please turn to page 288)





This specialist wants to work for you

**P-K® ASSEMBLY ENGINEERS  
ARE TRAINED TO HELP YOU DESIGN  
BETTER PRODUCT FASTENINGS  
AT LOWER COST**

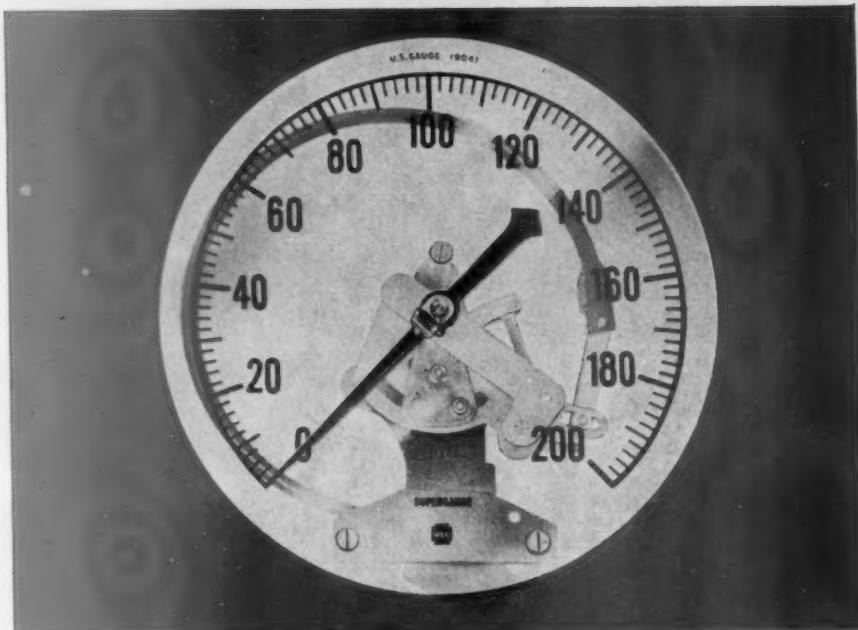
There's a Parker-Kalon Assembly Engineer nearby—ready to work for you. He's a fastener specialist with the experience and skill to help with your particular problem. Perhaps, he can show you how to eliminate some fasteners from your design—or suggest the use of less expensive types of fasteners. That's part of his job. Take advantage of this unique service while your product is still in the design stage. Call your local Parker-Kalon distributor and have him send a P-K assembly engineer to your office. This service is another reason why industry finds... if it's P-K, it's O.K.!

*Sold Everywhere Through Leading Industrial Distributors. Warehouses in Chicago, Illinois, Los Angeles, California*

**PARKER-KALON® fasteners**



PARKER-KALON DIVISION • GENERAL AMERICAN TRANSPORTATION CORPORATION • CLIFTON, NEW JERSEY



## New Supergauge Movement Extends Gauge Life; Gives Users Many Extra Benefits

In the quest for longer gauge life under severe operating conditions, one of the principal hurdles confronting instrument engineers has been the problem of gear tooth wear. Many efforts have been made to solve this problem including the use of materials other than metal.

U. S. Gauge research indicated nylon rolling on stainless steel provided the best solution if proper control of the nylon were achieved. All past experience showed that expansion of the nylon when subjected to heat and humidity changed pitch diameter causing binding and wear. This destroyed the gear rolling action, thus defeating its main advantage of assuring longer gauge life under severe operating conditions.

Using a new approach to the problem, U. S. Gauge engineers developed the new \*ARC-LOC movement.

Molded nylon is bonded to the face of the stainless steel segment to maintain pitch diameter. Gear teeth are then accurately generated on the nylon face to assure perfect rolling action on the stainless steel pinion. The segment gear face is broad and all bushings or pivots are deep to assure strength and ruggedness. The result is longer gauge life under severe operating conditions.

Since nylon is applied to the arc of the sector, any tendency of the nylon to grow or shrink occurs along the periphery instead of along the radius. Thus, accurate pitch diameter is maintained and there is no wear from binding. With this design, the smooth gear rolling action between segment and pinion continues even under adverse conditions of heat and humidity.

The new U. S. Gauge ARC-LOC movement also provides several additional features of interest to the user: For easier adjustment the complete movement can be rotated about the pinion axis, positioned properly and locked from the rear. This provides the advantage of linearity adjustment without removing dial and pointer. The unique locking method also eliminates creep during locking.

The Arc-tang segment allows range adjustment without resetting of the pointer.

These added advantages mean savings in time during calibration... an important factor in maintenance reduction.

For complete information on the savings that are made possible by U. S. Gauge's new Supergauges and Solfrunt gauges with the new ARC-LOC movement, write for Publication 1819.

\*Trademark

**USG**  
UNITED STATES GAUGE

*Gauge Headquarters*

FOR OVER 50 YEARS

UNITED STATES GAUGE

Division of American Machine and Metals, Inc., 112 Clymer Avenue, Sellersville, Pa.

For More Information Circle No. 375 on Inquiry Card—Page 17

news

(Continued from page 286)

duction in size and number of fasteners and holes, thus saving production time and increasing the strength of the assembly. Even as replacement in old equipment, use of high-carbon heat-treated screws can be economical as they offer insurance against failures.

### Pre-Testing Resiliency at Low Temperatures

A "TR" tester, which determines temperatures at which a synthetic rubber or other resilient material recovers elasticity after being frozen to temperatures of  $-80$  to  $-100^{\circ}$  F, has been perfected by the Precision Rubber Products Corporation, Dayton, Ohio, manufacturer of "O" rings. The device, an adaptation of an ASTM test procedure, is used by the company to establish "O" ring performance in low temperature conditions encountered in various "O" ring applications.

Low temperature testing gives assurance that "O" rings will provide safety and service in extreme cold as well as warmer climates.

### Grinding Wheel Formulas Electronically Computed

The possibility of human error has been eliminated, according to Bay State Abrasive Products Co., Westboro, Mass., in fulfilling specifications for different grinding wheels. This is made possible by the use of electronic computing equipment which is linked with a punch card system to calculate automatically the manufacturing formulas for all grinding wheels. As every grinding job is different, specifications for grinding wheels used in industry are subject to a thousand variations. At Bay State the formulas which

(Please turn to page 292)



## want a special type?

Have you a job that calls for a special steel? Call Crucible—and get it “off the shelf!” There’s a Crucible warehouse near you... fully stocked with virtually every type and size of special steel.

Whenever you want special purpose steels—of any kind, in any quantity—come to Crucible—big enough to serve you, small enough to want to.

*Stocks maintained of:*

*Rex High Speed Steel... ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars)... Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes)... Max-el, HY-Tuf, AISI Alloy, Onyx Spring, Hollow Drill Steel and other special purpose steels.*

# CRUCIBLE

## WAREHOUSE SERVICE

### Crucible Steel Company of America

General Sales Offices, The Oliver Building, Mellon Square, Pittsburgh, Pa. Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Dayton • Denver • Detroit • Houston • Indianapolis • Los Angeles • Milwaukee • Newark • New Haven • New York • Philadelphia • Pittsburgh • Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.

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FEBRUARY, 1956

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# By Installing Dayton P.M.\* and Flour Mill Saves Estimated

One half of the entire milling production of Valier & Spies Milling Co., St. Louis, subsidiary of Flour Mills of America, is dependent on this huge overhead drive.

Originally using another form of power transmission, it was subject to extreme vibration, high power consumption and frequent, costly downtime from wear and tear.

A study of maintenance costs was made. In dollars and cents, costs were about like this:

\$ 40.00	Cost of Labor for Repair
750.00	Continuing expenses (\$150.00 per hour) for 5 hrs. average repair downtime
20.00	Average costs of replacement parts
<u>\$810.00</u>	Approximate costs per downtime
With downtime recurring, roughly, 5 times yearly, maintenance costs were running around \$4000.00.	
Then the switch was made to Dayton Cog-Belts and Dayton's Preventive Maintenance Program was ini-	

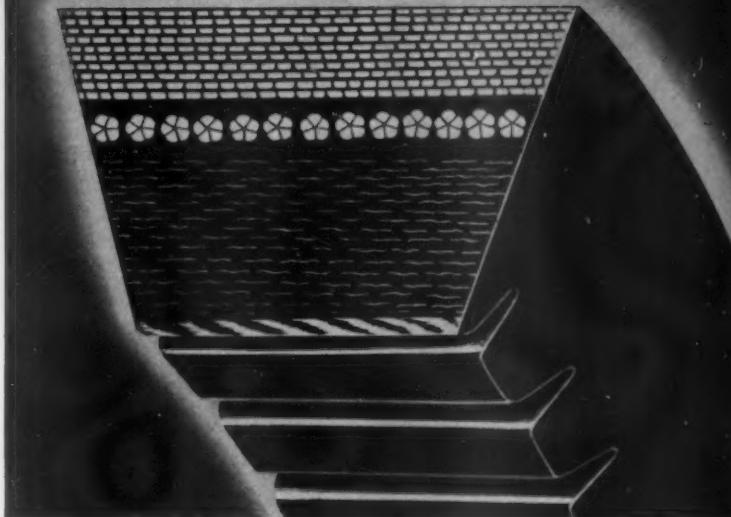
*\*Preventive Maintenance*



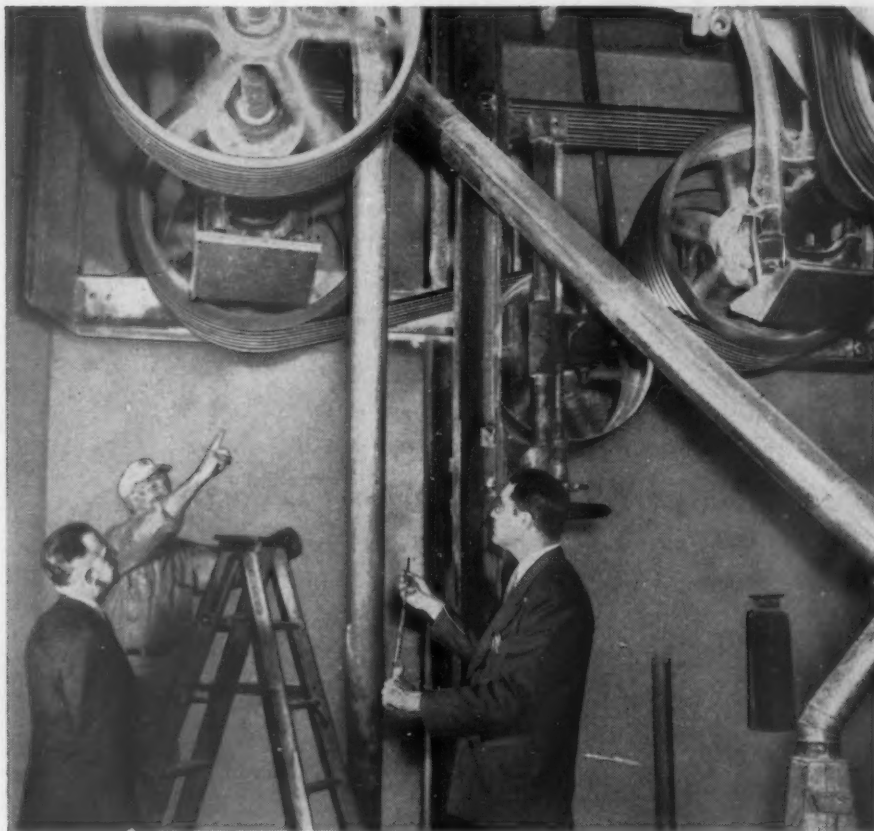
## Dayton Cog-Belts

# \$4,000<sup>00</sup> Yearly

iated. Results were immediate! Vibration ceased, power consumption dropped and downtime due to drive failure or repairs was a thing of the past—conservatively, a saving of \$4000.00 annually for Valier & Spies Milling Company! Why not investigate Dayton's P.M. Program for maximum savings on the drives in your plant—just call your local Dayton distributor or write Dayton Rubber Co., Industrial Division, Dayton 1, Ohio for complete details.



The Dayton Cog-Belt† is unequalled for rugged drive conditions. Because of its premium quality construction and exclusive Cog design, it carries approximately 40% more H.P. than standard V-Belts.



Mr. F. E. McAdams, Maintenance Supt., Valier & Spies Milling Co., St. Louis, points to a drive converted from chain to Dayton Cog-Belts to cut noise and vibration and reduce downtime and maintenance costs. Walt Metzger, Dayton Representative, and Les Maurer,

Bates Sales Co., Dayton Distributor, recommended 8 E-Section Cogs on 36" P.D. Sheaves. The installation immediately reduced vibration, virtually eliminated downtime, and reduced power consumption from approximately 32 to 22 amperes.

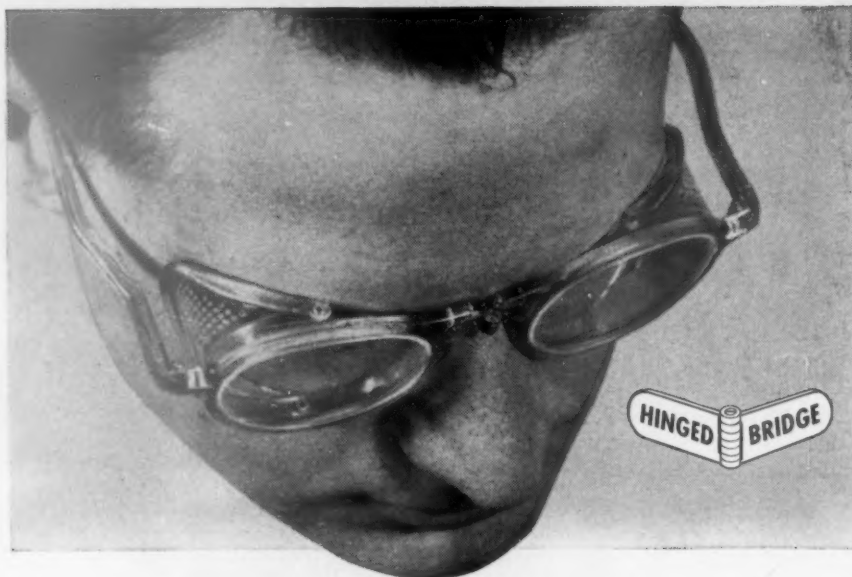
© D.R. 1956  
†T.M.

See "Belting" in the  
yellow pages for your  
local distributor.



**Dayton Rubber**  
51  
YEARS OF PROGRESS

World's Largest Manufacturer of V-Belts



## **WILLSON** *Contour-Spec*® gives you "wrap-around" protection and comfort!

**Patented hinged bridge, exclusive with Willson, permits comfortable and complete closure around eye cavity.**

Willson Contour-Specs actually wrap around the wearer's face. This permits the comfortable plastic nose and cheek pads and the round molded cushion on the side shields to make gentle, comfortable *contact all around!* Actually, Willson Contour-Specs combine the all-around protection of cup goggles with the lightweight comfort of safety spectacles.

**It is the Willson Research Center . . .** that brings you this advance in safety spectacle design—along with its complete line of more than 50 styles of safety spectacles to meet every eye protection requirement.

Write today for your new Willson catalog of eye, respiratory and head protection equipment, and—in the meantime—ask your Willson distributor to show you the unique Willson Contour-Spec.

# **WILLSON**

221 Washington Street,



Over 300 Safety products  
carry this famous trademark

## **PRODUCTS, INC.**

Reading, Pennsylvania

For More Information Circle No. 379 on Inquiry Card—Page 17

## news

(Continued from page 288)

tell the factory the proportion of ingredients that will be needed to make a wheel according to a particular specification are preserved on punched cards.

On any reorder of a grinding wheel, the punched card carrying the formulation data is fed into an electronic computer. The latter then delivers manufacturing instructions, ingredient by ingredient, plus other instructions on manufacturing forms which then go directly to the factory. This insures absolute accuracy in duplicating wheel formulation and assures the purchaser of the grinding wheel that he will get the special grinding qualities needed for a particular job.

### **Wide Aluminum Extrusions Offer New Design Concepts**

Harvey Aluminum, 19200 S. Western Ave., Torrance, Calif., is producing wide profile aluminum extrusions which can be considered as sheet or plate incorporating integral stiffness and structural members produced all in one piece at one time. This enables PAs to obtain shapes to the desired finished section by combining components into one integral unit. Built-up sections are eliminated and assembly and production time reduced. Material distribution is such that considerable weight is saved together with an increase in strength. A typical example of the use of wide aluminum extrusions is **scaffold platforms**. Compared with wood construction, aluminum scaffolds weigh one-third that of wooden ones and can be set up or dismantled by one instead of two men.

**PLEASE USE  
READER-SERVICE CARD  
PAGE 17**



a new

mop dressing

safe

for asphalt tile

amazing

- long lasting
- non-flammable **super HIL-SWEEP**  
**makes dirt and dust disappear!**

Magnetically attracts dirt and dust, holds it to the mop. No kick-up of dust, to re-settle later.

Super HIL-SWEEP is easy to use. Just spray or sprinkle it on mop the night before. Penetrates evenly into cotton wicks. Stays in the mop without build-up; just shake mop to release dust. Makes daily maintenance fast, simple, effective.

- **Saves Frequent Scrubbings**

Super HIL-SWEEP picks up the dirt before it has a chance to grind in. Leaves the surface dust-free, with renewed lustre.

- **Formulated for Asphalt Tile—**

Safe for any surface.

- **Fire-Safe, Too**

Will not freeze—yet has no flash point.

No fire hazard in use. No spontaneous combustion of mop or dressing in storage.

- **Keeps Your Floor Slip-Safe**

Keeps a safe floor safe—does not affect the non-slip properties of your floor.

- **Long-Lasting**

Super HIL-SWEEP evaporates very slowly; stays in the mop. Sweeps entire area without re-treating mop.

Make This Test Yourself—  
24-hour dunking in 100%  
Super HIL-SWEEP does not  
injure Asphalt Tile!

The Hillyard Maintaineer®  
is "On Your Staff, Not  
Your Payroll". Ask him  
for expert advice on your  
floor problems. Serves you  
from Hillyard Branch Of-  
fices in Principal Cities.



**ST. JOSEPH,  
MISSOURI**  
Passaic, N. J.  
San Jose Calif.

Branches in Principal Cities

**FIND OUT HOW ECONOMICAL Super HIL-SWEEP CAN BE. WRITE TODAY**

**HILLYARD, St. Joseph, Mo.**

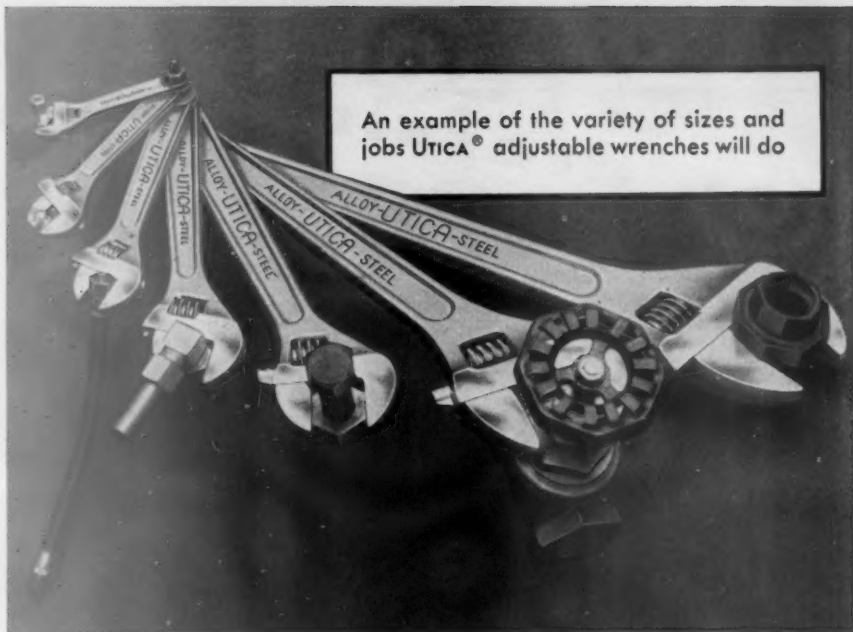
Without obligation, please have the Hillyard Maintaineer nearest me show how New Super HIL-SWEEP will save my floors and save me money.

Name.....

Institution.....

Address.....

City..... State.....



## If it's a job for a wrench BUY UTICA® ADJUSTABLES!

### Extra Hardened for Longer Wear

No matter what the size of the job—you'll find a UTICA induction-hardened wrench to fit it.

Everyone who has used a wrench over a period of time knows that the jaws have a tendency to burr or nick.

But not UTICA® wrenches!

UTICA has developed a special electronic induction-hardening process that gives extra hardness to the jaw surfaces, yet, preserves the toughness of the steel in the rest of the tool. Controlled tests have proven that wrenches induction-hardened by UTICA last up to ten times longer than other wrenches.

UTICA® adjustable wrenches are available through your distributor or dealer in sizes ranging from 4" to 18".

Look for this same hardening process on a variety of special design pliers and standard styles manufactured by UTICA—from midget tools to heavy duty cutters.

See Your Distributor for Complete Details

# UTICA®

*Remember the name*

# TOOLS



THE HALLMARK OF QUALITY

DROP FORGE & TOOL CORPORATION

UTICA 4, N. Y.

In Canada: Adlam Tool & Supply Co., Ltd., Montreal

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## Book Review

### Measuring Business Changes

by Richard M. Snyder  
John Wiley & Sons, Inc. \$7.95

Often, the PA doubles as unofficial company economist. Even if he doesn't, a knowledge of business and economic changes is invaluable if he is to properly evaluate market trends. *Measuring Business Changes* describes and explains over 50 of the key indicators needed to interpret and forecast conditions in the business world. In 9 fact-filled sections it covers the basic measures of changes in national income and product, population, labor, commodity prices, production and business activity, construction activity and costs, financial activity, and stock prices.

The nature and significance of these barometers are explained in terms a businessman can understand. Misuses as well as uses are stressed. Material is presented in a handbook style to make it easy to find answers to specific problems.

### Non-returnable Reels for Wire and Cable

The Anaconda Wire and Cable Company has adopted a program of making shipments of certain types of wire and cable on non-returnable reels. Initially, the program will be more or less confined to shipments of building wire items to distributors' stocks and to aluminum insulated and covered conductors. Experience will dictate the ultimate scope of the new program.

The types of non-returnable reels used by the Anaconda Wire and Cable Company have withstood commercial shipments to all sections of the United States over the past year and they have proven adequate on all occasions.

Some of the benefits which will accrue to the customer in this program are:

Elimination of reel deposit charges.

Elimination of clerical records for the maintenance of reel data.

Reduction of storage space.

Reduction in overall weight.

Elimination of reel returns to the manufacturer.

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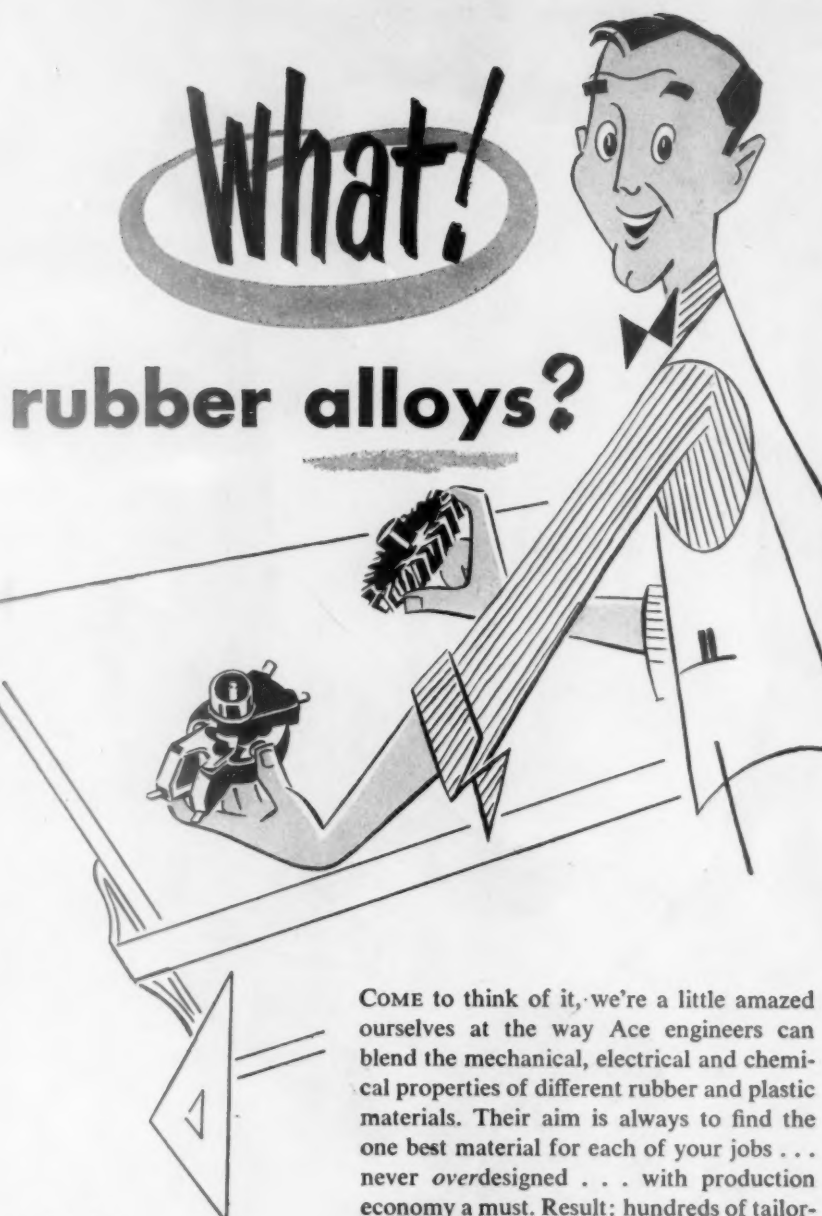
He's reaching  
for the **BEST**  
**ELECTRICAL**  
**TAPE...**



**ACCURATE TAPE**

**FRICTION, RUBBER SPLICING, and PLASTIC TAPES**  
**ACCURATE MANUFACTURING COMPANY**  
Garfield, New Jersey





## ACE®

Controlled-property compounds meet your needs for:

MECHANICAL,

ELECTRICAL,

CHEMICAL APPLICATIONS



COME to think of it, we're a little amazed ourselves at the way Ace engineers can blend the mechanical, electrical and chemical properties of different rubber and plastic materials. Their aim is always to find the one best material for each of your jobs . . . never *overdesigned* . . . with production economy a must. Result: hundreds of tailor-made rubber, plastic, and rubber-plastic alloys to choose from . . . plus many unusual materials like Ace-Tex pyrobitumens. Ask us for anything from rough-ground rods to finished molded assemblies. Our facilities for molding, extruding, fabricating, and lining are among the world's largest.

Always check your ACE design engineer's Handbook when selecting materials for today's production and tomorrow's plans. If you haven't a copy, write today! It's Free.



## ACE rubber and plastic products



AMERICAN HARD RUBBER COMPANY  
93 WORTH STREET • NEW YORK 13, N. Y.

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## Educating the Boss

(Continued from page 74)

concerning purchasing policy.

3. The boss responded but, you feel, wasn't adequately educated in the matter under consideration.

In cases (1) and (2) the attempt has obviously been brought to a conclusion, for better or worse, so these can be eliminated from our discussion. In most cases involving policy education, the third alternative is the usual one, emphasizing the need for this final step. This should not be discouraging. Students generally have to be re-taught some portions of a lesson. Follow-up is necessary in most human activities to pick up "tag ends." And education is a continuing process.

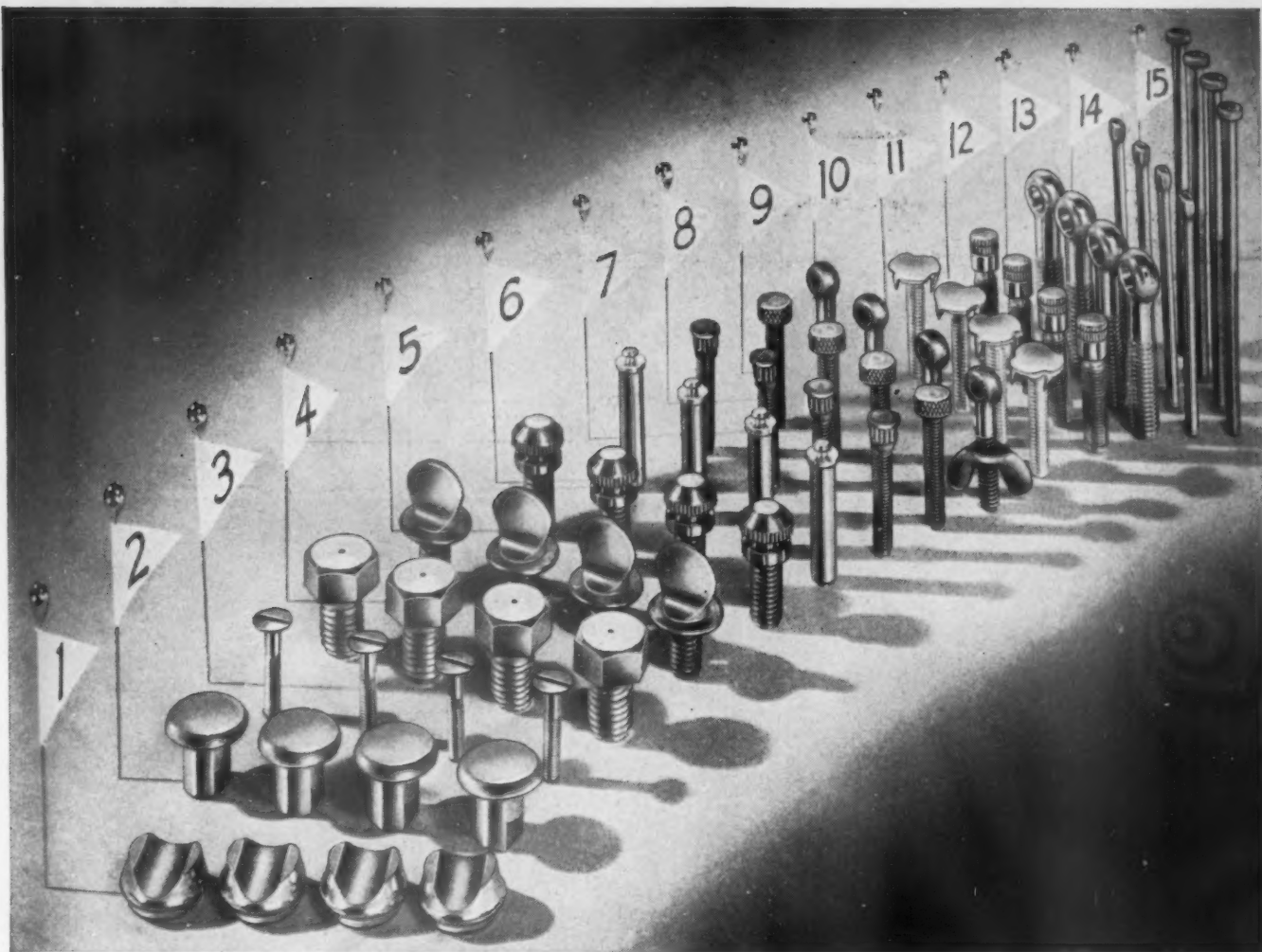
### "Re-Sell" the Boss

To be sure of successful education in policy, one must implement that policy in such a way that it will be successful. This will include educating subordinates, vendors, fellow executives, customers, purchasing executives in other companies, and others. The boss will have to be "re-sold" several times, as will the others, until the new policy is established.

Education is more tenuous than selling. Actions speak louder than words. Actions may prove that no education really took place even though a policy has nominally been accepted, whereas selling may have some evidence of completion through the payment of funds.

Since education is a continuing process, it does not lend itself completely to a capsulized formula. Yet it is interesting to see how the formulas for other activities can be applied, and when the "wheels within wheels" in our diagram begin to mesh we have a useful guide for achieving the desired results in our educational project.

Out of this discussion the writer will guarantee one important result. If the purchasing man will use this formula in educating his boss on purchasing policy, even though the boss may not become educated, the purchasing man surely will!



## This Army of Specials Marches to Save You Money

Here are a few of the many specials produced by Harper to save industry money—to do a better job.

Many used to be milled from bar but Harper engineers and metallurgists developed methods of cold-forming them with these results:

- Important savings in cost
- Faster production
- No metal wasted
- Usually a cleaner, stronger, better finished product

If you are using parts like these of any metal other than plain steel in quantity, it will pay you to check with Harper no matter how you are producing them.

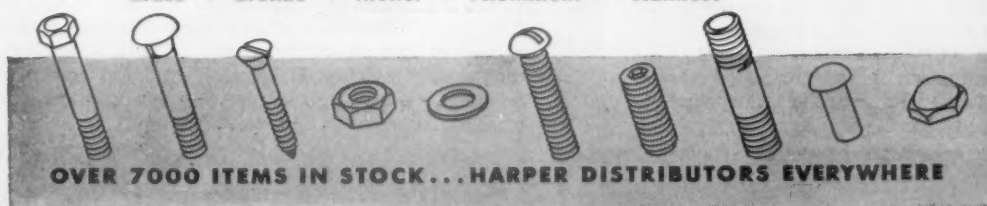
Remember also that Harper is the largest manufacturer specializing in standard bolts, nuts, screws, washers and rivets of all non-ferrous metals and stainless steel. Stocks available in every market area for immediate delivery. Check the Harper branch or distributor near you.

THE H. M. HARPER COMPANY  
8222 Lehigh Avenue, Morton Grove, Ill.

### Specialists in all corrosion-resistant fastenings

Bolts • Nuts • Screws • Rivets • Washers  
of

Brass • Bronze • Monel • Aluminum • Stainless



1. Copper Contact
2. Copper Lead
3. Brass Hi-torque Brake Band Bolt
4. Aluminum Hex Head Air Pressure Bolt
5. Silicon Bronze Transformer Adjusting Screw
6. Silicon Bronze Terminal
7. Stainless Steel Groove Pin
8. Silicon Bronze Molded Plastic Insert
9. Stainless Steel Focusing Screw
10. Stainless Steel Hinge Pin
11. Brass Hold-down Screw
12. Brass Terminal Block Screw
13. Monel Eye Bolt
14. Copper Conductor Pin
15. Stainless Steel Hex Head Stem Bolt



# EXTRA SAVINGS, EXTRA EFFICIENCY



**Reduce roof failures—** Fibreglas Built-up Roofs are one solid mass of asphalt or tar reinforced with strong glass fibers. Fibreglas mats are inorganic, won't rot, won't wick moisture to blister roofs, outlast any organic felts. Use Fibreglas Roof Insulation, too, when you reroof—to save on heating and air conditioning costs.



**End window breakage—** Shatterproof, Fibreglas-reinforced paneling ends window replacement problems, gives glare-free daylighting, means better working conditions. You can choose flat or corrugated sheets in a wide variety of colors for window glazing, skylighting or sidelighting in new or existing buildings.



**Pay less for cleaner air—** Original cost of Dust-Stop Air Filters averages only one-tenth that of permanent filters. And replacement costs compare favorably with cost of installing and cleaning permanent filters over a period of time. Send for cost study folder and analyze the savings possible in your own ventilating systems.



**Reduce insulation replacement—** Kaylo Pipe and Block Insulations resist abuse of all kinds, last longer, are strong enough to walk on or place ladders against. Kaylo is moisture resistant, efficient, shrinks only 2% at top temperatures. Suited to a wide range of pipe and equipment insulation tasks at temperatures up to 1800° F.



await you in these Fiberglas materials for industry



**Cut packaging costs up to 60%**—Two strips of Fiberglas-reinforced tape replace six strips of ordinary paper tape in carton sealing. Cost studies show savings up to 60%. Fiberglas-reinforcement gives other papers and tapes greater strength, too, to solve many plant packaging and materials handling problems.



**Reduce electrical failures**—Fiberglas-insulated motors resist damage from heat and moisture . . . cut breakdowns and costly downtime, give greater capacity with less bulk. These qualities allow you to get greater performance for future needs—be sure your wiring is adequate, too; replace outdated wiring with high performance Fiberglas-insulated wire.



**Cut insulation application cost**—It's easy to install Fiberglas insulation on pipes or equipment. It's light in weight, can be fabricated quickly with any knife. Factory-applied jackets on pipe insulation permit use on hot, cold or outdoor piping. High efficiency permits use of lesser thicknesses. Suited for up to 400° F.

Fiberglas\* products can bring real benefits to every business in a wide variety of applications. Here are just a few more:

**Fiberglas Screening**—resists industrial fumes, strongest screening ever made. Can be used as insect screening or as lint screen.

**Noise Control Products**—In plants, offices, or in your products, Fiberglas can help cut down excess noise.

**Reinforcement**—Fiberglas strands give strength to paper, plastics, rubber, gypsum and other materials to broaden their usage.

**Industrial Building Insulation**—Rigid insulating boards combined with other materials reduce cost of industrial buildings.

These are only a few samples of the many Fiberglas products you may use with profit in your business. To discover other ways Fiberglas products can fit into your plans, call your local Fiberglas Sales Office or write Owens-Corning Fiberglas Corporation, Dept. 85-B, Toledo 1, Ohio.

It's  
amazing  
the  
difference  
Fiberglas  
makes

OWENS-CORNING  
**FIBERGLAS**

©T. M. Reg. O-CF. Corp.

**Yes, sir! You can have  
that Suction Hose  
by noon today!**



**Your nearby  
CONTINENTAL  
warehouse has it  
—1½" through 10"**



You'll get *fast* delivery when you call any nearby Continental Warehouse listed below. They *all* carry big stocks of Suction Hose—many have both 8" and 10" ready to ship the minute you call.

You have no need to wait for long distance shipments. No need for delays that eat into profits. No need to tie up your capital in costly inventories.

So, next time you need Suction Hose (or any other hose\*) call or wire the nearest Continental Warehouse. You'll like this fast, stand-by service ready to give you the hose you *want—when* and *where* you want it.

**HOSE by -  
CONTINENTAL**

\*A complete line for Contractors: Air, Water, Steam, Suction, Discharge and Pile Driver Hose. Protective Clothing, Boots and Gloves. Send for latest catalog.



Tear out this list to call for  
fast delivery on hose from  
**CONTINENTAL  
WAREHOUSES**

ATLANTA 5, Ga.  
477 Eighth St., N.W.  
BALTIMORE 1, Md.  
122 South Howard St.  
BOSTON (Allston 34), Mass.  
12 Franklin St.  
BUFFALO 3, N. Y.  
115 Clinton St.  
CHICAGO 10, Ill.  
10 West Hubbard St.  
CINCINNATI 2, Ohio  
49 Central Ave.  
CLEVELAND 15, Ohio  
2731 Prospect Ave.  
DETROIT 27, Mich.  
13801 Schoolcraft Ave.  
INDIANAPOLIS 2, Ind.  
309 North Capitol Ave.  
MEMPHIS 3, Tenn.  
268 Madison Ave.  
NEW YORK 7, N. Y.  
81 Murray St.  
PHILADELPHIA 6, Pa.  
311 North Randolph St.  
ST. LOUIS 8, Mo.  
4018 Olive St.  
SYRACUSE 3, N. Y.  
739 Montgomery St.

## Auditor and Purchasing

(Continued from page 102)

basis of adequate and open specifications, wherever feasible, tends to remove any incentive on the part of prospective suppliers to try to influence the purchasing agent, through gifts or other favors, in making his awards.

Care should be taken to avoid preparing a specification written around the product of one company, as this would make a farce of bidding. On the other hand, if such standardization on a single product is necessary for some good and sufficient reason, a record should be made by the purchasing agent, with an analysis of the price offered by the particular bidder in the light of market conditions. In the event this standardization results in the quoting of an exorbitant price, this should be reported to management, and such standardization should be promptly abandoned if possible. This is the procedure followed in those public purchasing departments in which sound and efficient public purchasing has been established. The public purchasing agent then operates in a "goldfish bowl". Prices are not concealed, as in private buying, and awards are made to the best qualified and most economical responsible sources. Your questions during a department audit could disclose whether these procedures are being followed, or some other practicable policy to attain the same result.

As to direct control of the gift problem, it is difficult to set any arbitrary standard. You could suggest that the following criteria be adopted: Any gift from a supplier to a purchasing agent should be returned

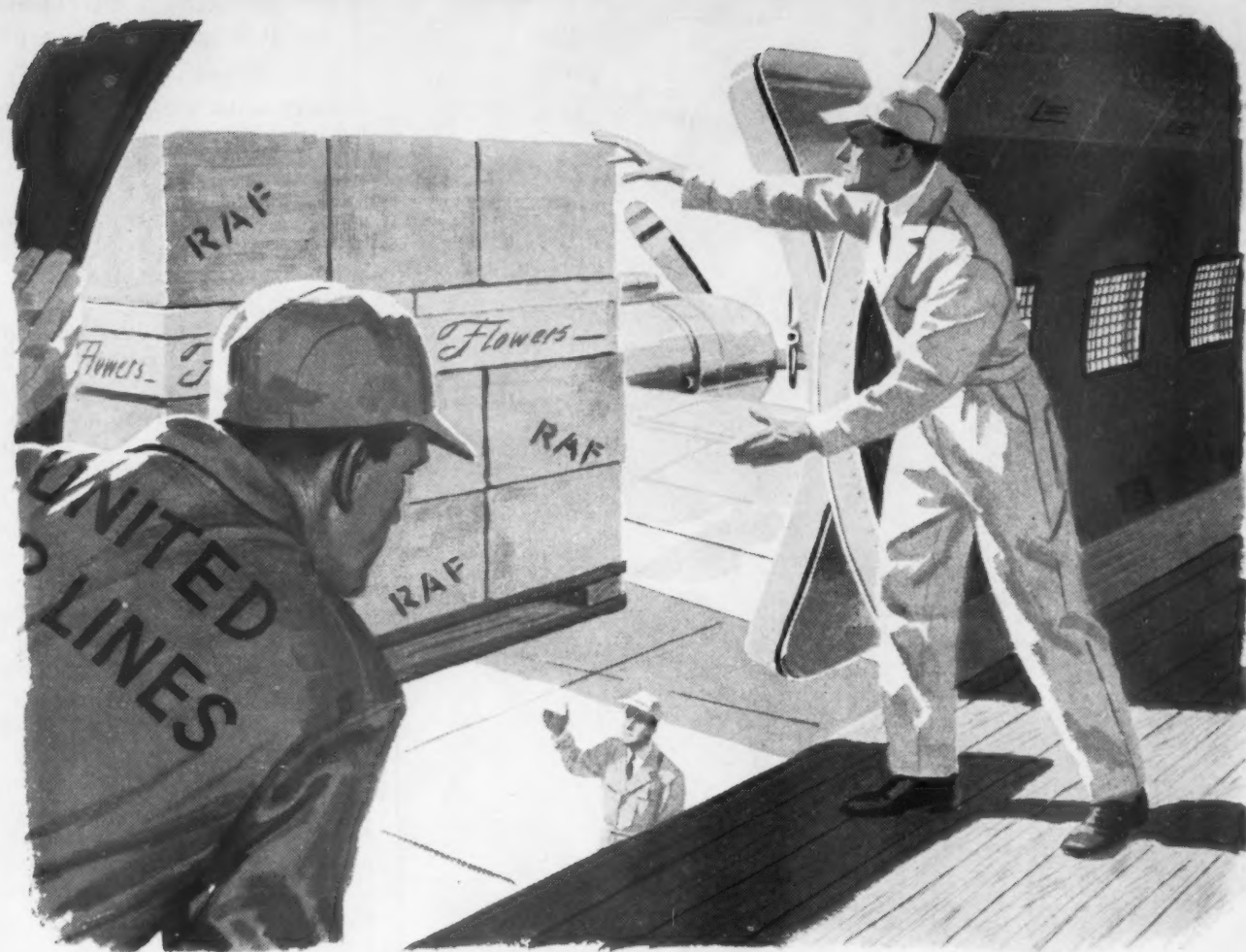
(a) if the intrinsic wholesale value of the gift exceeds \$10, or

(b) if the purchasing agent believes the gift was made in order to influence his buying judgment.

The internal auditor is in an excellent position to inform management that purchasing agents generally are opposed to Christmas gifts from suppliers, and they desire discontinuance of the practice. I am sure that industry and the purchasing profession would welcome such a recommendation.

CONTINENTAL RUBBER WORKS • 1983 LIBERTY ST. • ERIE 6 • PENNSYLVANIA

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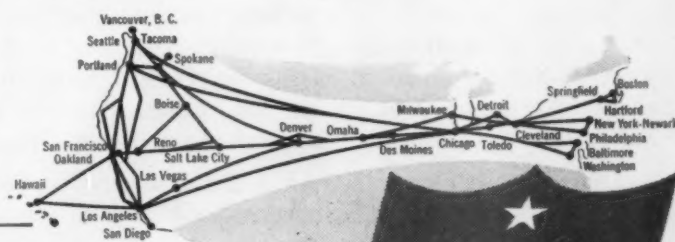
## Only **UNITED AIR LINES** offers Reserved Air Freight space on all equipment

For extra convenience and dependability, United Air Lines can guarantee you space for your shipments through its Reserved Air Freight plan. And only United makes this available on all equipment—over its own routes and world wide as well.

Reserved Air Freight space is just one of the reasons why so many businesses in practically every field are turning to United Air Lines Air Freight. Another is United's route, which links the East, the Midwest, all the Pacific Coast and Hawaii—a total of 82 markets.

And at every point along its Main Line Airway, United can furnish fast, convenient connections to speed your shipments throughout the nation and the world.

Whatever you ship, wherever you ship it, call on United Air Lines for the utmost in air freight convenience, dependability and economy.



For service or information, call or write the nearest United Representative.  
Or write for booklet, "Industry's Flying Partner,"  
Cargo Sales Division, Dept. C-2,  
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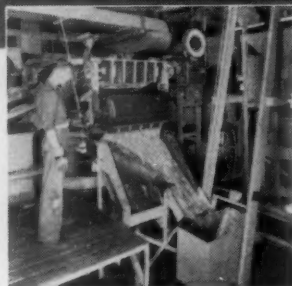




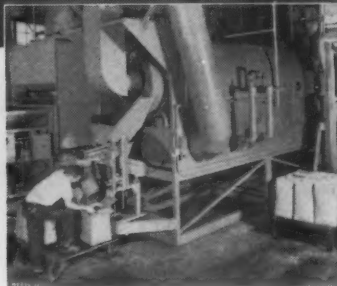
## PLATING 400,000 POUNDS A DAY WITH THIS UDYLITE MACHINE...



End view showing exhaust system and heat exchangers.



Unloading station of Udylite Automatic Barrel Machine.



Drum type dryer used for drying bright zinc plated work.

Harding Manufacturing Company are bright zinc plating 20,000 pounds of small parts per hour with their Udylite Full Automatic Barrel Plater and are running it 20 hours a day.

Only four men are used in operating this Udylite machine. One man loads the feeder hopper. One man loads the cylinders. One man unloads the cylinders and one man unloads the dryer and dichromating operation—5,000 pounds of plating per man hour.

And with this tremendous production is all the desired versatility. The machine is so designed with electrical controls that the plating time and thickness of plating in each cylinder load can differ from other loads going through the machine cycle at the same time. The plating time for each load is predetermined by the operator at the time the cylinder is loaded.

This is another example of Udylite experience in production plating. If you have a plating problem—large or small—it will pay you to consult Udylite.

**THE**  
**Udylite**  
**CORPORATION**  
DETROIT 11, MICHIGAN

WORLD'S LARGEST  
PLATING SUPPLIER

## Decentralized Purchasing

(Continued from page 87)

elaborate record files, but actually helps the purchasing agent do a better buying job. This is because the form has been designed as an exceptionally complete purchase record, presenting all essential data pertaining to the item in one place, at the time the item comes up for consideration. Once the requisition is delivered to purchasing, it is possible to go ahead and get quotations without any further checking of files. This usually means faster service to the requisitioner.

By making intelligent use of time savers, Mr. Krause finds time to do more than just a good buying job for Parker Appliance. He is an active participant in the affairs of the Cleveland P.A. Association. Recently, he served as guest instructor for a purchasing course, sponsored by the Association, at Cleveland College.

## Uniformity in Commercial Law

(Continued from page 128)

true of the other areas covered by the code.

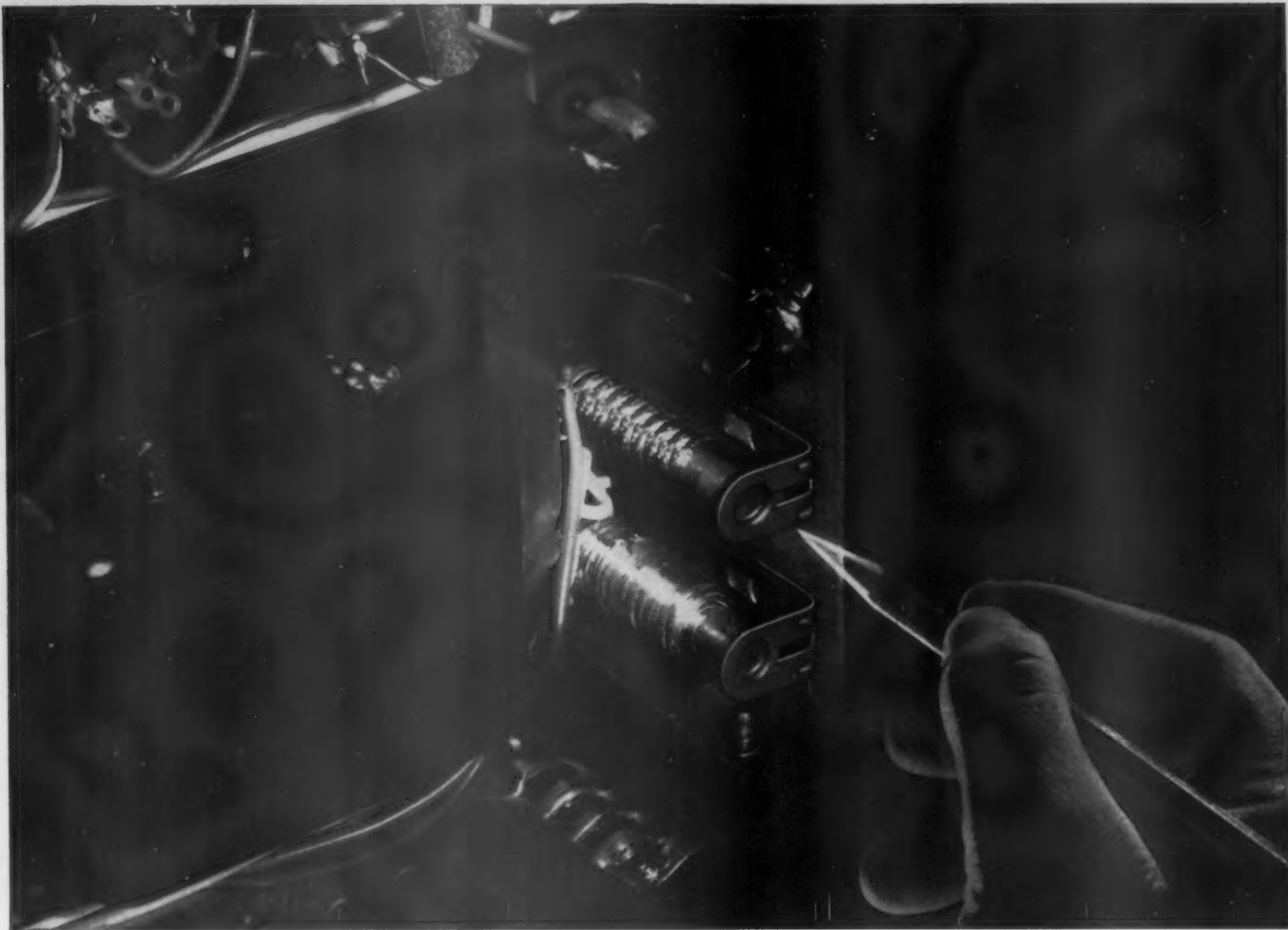
### Progress toward Adoption

No state other than Pennsylvania has thus far enacted the Code. It is under consideration in several other commercially important states. However, most states seem to be marking time, waiting to see what happens in New York. This appears to be particularly true of Massachusetts, where a special interim commission established to investigate the Code submitted a report in 1954 recommending its enactment, but the Massachusetts legislature has taken no further action.

In New York, the Code is under study by the New York Law Revision Commission, which held hearings during most of 1955 and will probably render its report in 1956. That Commission has made a detailed analysis of the Code's 390 sections, and compared them with both New York law and the law of other states. In its annual

(Please turn to page 306)

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Engineered by Tinnerman...

## **SPEED CLIP® simplifies assembly, adjustment and servicing...and saves money!**



The Westinghouse Television-Radio Division, Metuchen, New Jersey, needed a fastener to fill a complex fastening requirement. Tinnerman was consulted, and developed a *special* SPEED CLIP that fit the job perfectly!

This one-piece, spring steel SPEED CLIP is assembled quickly and easily to the television tuning coil. The SPEED CLIP, with tuning coil attached, is then simply snapped by hand into twin mounting holes in the chassis to lock the

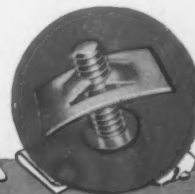
unit securely in place. This SPEED CLIP cuts costs on the assembly line. And it permits fast and simple adjustment of the television tuning coils, eliminating the problem of blindly searching with a screw driver for the slot of a special hex nut.

Find out how SPEED NUT Brand Fasteners can help you improve your own fastening methods. Ask your Tinnerman representative for details of our Fastening Analysis Service or write for Bulletin No. 336.

**TINNERMAN PRODUCTS, INC.**, Box 6688, Dept. 12, Cleveland 1, Ohio  
*Canada:* Dominion Fasteners, Ltd., Hamilton, Ontario. *Great Britain:* Simmonds Aeroces-  
 sories, Ltd., Treforest, Wales. *France:* Aerocessoires Simmonds, S. A., 7 rue Henri Bar-  
 busse, Levallois, (Seine). *Germany:* Hans Sickinger GmbH "MECANO", Lemgo-i-Lippe.

**TINNERMAN**

***Speed Nuts®***  
 FASTEST THING IN FASTENINGS®



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 FEBRUARY, 1956

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303

**the Department Store of**

*in*

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Cleveland  
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Indianapolis  
Lancaster  
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**Warehousing**

a complete line of standard products and special steels.

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the steel you want, when you want it.

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STEEL**

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STEEL





Whether we  
"NEED IT  
OR NOT"

*Frank Sorenson, Jr.*

TREASURER, THE CINCINNATI GEAR CO.

In one way we're a little like the old-timer who religiously took a bath every Saturday—whether he 'needed it or not.' We take somewhat the same attitude towards the replacement of our gear manufacturing equipment. We purchase new equipment and tools and retire old machines on a regular calendar basis, even though the old ones may seem adequate for further use. It is all too easy to slip into the habit of putting off purchase of a new unit because the old one still has "lots of use left in it," or is still "relatively" efficient. By prodding ourselves into the purchase of new equipment on a 'schedule' we have avoided this pitfall, and today we have as modern and efficient gear manufacturing facilities as any in the industry. Even our factory buildings (have you ever seen our plant?) reflect this constant striving for the better and the more efficient—for our present plant, built in 1942, replaced a plant that then was a relatively modern installation.

Just as the fellow who took the Saturday night bath was not out of step with the world 50 or 75 years ago, neither was the firm who bought their production machinery "to last." Today, however, the march of technological progress has become so fast and so relentless that we cannot afford to be content with what we have; an aggressive modernization policy is a *must*. We've built up a reputation for producing the best in custom gears, and for producing them efficiently—and we intend to keep that reputation in years to come.

## THE CINCINNATI GEAR CO.

CINCINNATI 27, OHIO

"Gears—Good Gears Only"



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on Inquiry Card—Page 17

## Uniformity in Commercial Law

(Continued from page 302)

report submitted in February 1955, the Committee indicated that it had found some shortcomings in the Code as now written but that it also sees a great deal of merit in the proposal. This would seem to indicate that perhaps the Commission will recommend enactment of the Code with some recommendations for major revisions and alterations.

Whatever New York does will have a profound effect on the other states simply because of New York's pre-eminent importance as the center of commercial activity in this country. Already the American Law Institute has published a series of amendments to the 1952 Official Draft of the Code, largely as a result of criticisms and suggestions received from interested groups. While it is apparent that both the American Law Institute and the National Conference of Commissioners of Uniform State Laws are basically satisfied with the Code as now written, close contact is being maintained with the New York Law Revision Commission. Any changes proposed by that Commission will, without doubt, receive the most careful consideration, and will likely be adopted by the drafters of the Code.

So, at the moment, the Code is in a state of suspended animation. Perhaps, however, 1956 or 1957 will see its enactment in a number of commercially important states. If so, it will mark the most important development in the law of commercial transactions in this century.

## Aluminum Welding Cable

A new lightweight aluminum welding cable, type D866, has an excellent degree of flexibility and is constructed to prevent kinking. The combined insulation and jacket of tough vulcanized rubber, according to General Cable Corp., 420 Lexington Ave., New York 17, N.Y., the manufacturer of the cable, assures resistance to abrasion, impact, flexing and twisting.



## REGULATORS

*... Built for Better Service!*

**STURDY CONSTRUCTION**—Forged brass bodies, shatterproof gauges, dependable safety valves.

**LOW COST**—Replaceable, self-aligning seats; minimum of moving parts.

**YOUR DOCKSON DISTRIBUTOR**—a selected specialist stocks a complete line of Dockson Products to give you fast service and personal attention. We back our distributors 100%.

WRITE FOR YOUR DISTRIBUTOR'S NAME  
AND OUR COMPLETE CATALOG OF WELDING  
AND CUTTING EQUIPMENT



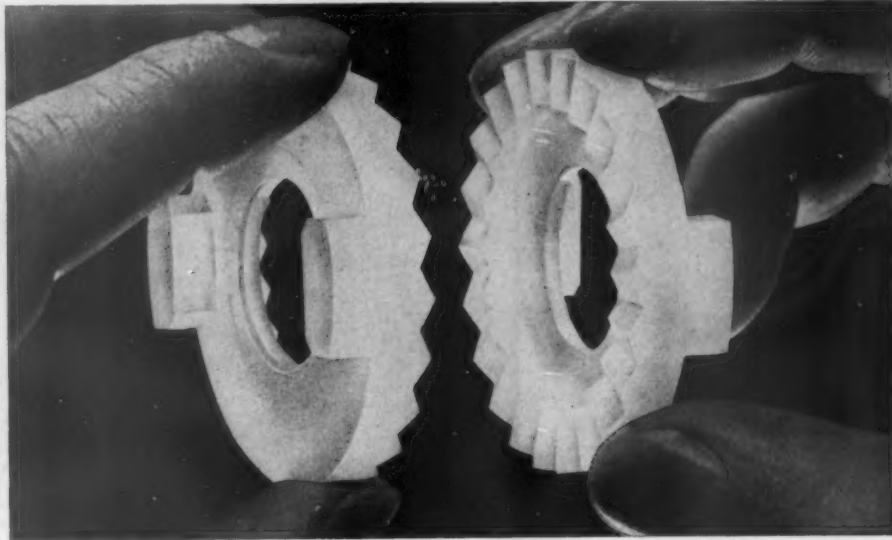
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PURCHASING

## A Message from Du Pont on Advanced Product Design



WITH AN INJECTION-MOLDING MACHINE, parts of "Zytel" nylon resin like the clutch facing can be mass-produced in multi-cavity dies—a fast, efficient method of



fabricating, which generally requires no machining or finishing. Facings shown at right are molded by The Danielson Manufacturing Company of Danielson, Connecticut.

# Clutch facings of ZYTEL<sup>®</sup> nylon resin last 5 times longer... save \$150 per year per clutch

32¢ facings of "Zytel"  
replace \$8.75 metal facings

This clutch revolves at 1750 rpm, transmitting 75 ounce-inches of torque. It is engaged and disengaged up to 40 cycles a minute, 24 hours a day. Minnesota Mining & Manufacturing Company, St. Paul, Minnesota, formerly used heat-treated metal facings for this heavy-duty job, but had to replace them an average of 17 times a year. After a change to facings molded of tough, wear-resistant "Zytel" nylon resin, replacements were required only three times a year!

The metal clutch components cost \$8.75 apiece. Those of "Zytel" are 32¢ each. The savings realized on the first 91 facings of "Zytel" covered the costs of the die required to mold these precision parts. Minnesota Mining & Manufacturing Company estimates an annual saving of \$150.00 per clutch installation, to which can be added

savings which accrue from only three machine shut-downs a year instead of seventeen.

Du Pont "Zytel" nylon is resilient and lightweight. Moving parts often require little or no lubrication. This engineering material has good dielectric properties... also resists corrosion and deformation from moisture. "Zytel" can operate continuously at temperatures as high as 250°F. As for its production economy—the case history above clearly demonstrates how injection molding can cut costs.

**Have you investigated the unique properties of "Zytel"** nylon and other members of the Du Pont family of engineering materials—"Teflon" tetrafluoroethylene resin, "Alathon" polyethylene resin and "Lucite" acrylic resin? The applications shown here are typical product improvements—possible when design and service requirements are evaluated in terms of the properties of these versatile engineering materials. For further information on their properties and uses, clip the coupon below or write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Room 372, Du Pont Building, Wilmington 98, Delaware.

**ZYTEL<sup>®</sup>**  
nylon  
resin

**ALATHON<sup>®</sup>**  
polyethylene  
resin

**TEFLON<sup>®</sup>**  
tetrafluoro-  
ethylene resin

**LUCITE<sup>®</sup>**  
acrylic  
resin



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

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Room 372, Du Pont Building, Wilmington 98, Delaware  
In Canada: Du Pont Company of Canada Limited,  
P.O. Box 660, Montreal, Quebec

Please send me more information on the Du Pont engineering materials checked: "Zytel" ☐; "Alathon" ☐; "Lucite" ☐; "Teflon" ☐.  
I am interested in evaluating these materials for \_\_\_\_\_

Name \_\_\_\_\_

Position \_\_\_\_\_

Type of Business \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



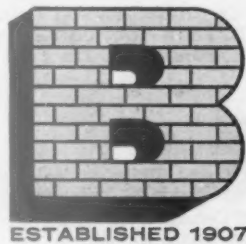
Foxy Fox was quite hungry and thirsty when he stole into a vineyard with its luscious grapes hanging high on a trellis. Again and again he jumped and snapped, only to fall short each time. Finally, fatigued, he sat back on his haunches and muttered: "Well, I didn't want those grapes anyhow ... they're probably sour!"



**Moral:**

*It is easy enough to say "sour grapes" to that which we cannot get.*

... but, there's no cause for this to happen when it comes to the *availability* of famous ADAMANT High Temperature Fire Brick Cement ... or any others of the popular ADAPRODUCTS Line of Refractories. We have Distributors located in key spots throughout the country ... in Canada, too! Consult the yellow pages of your 'phone directory ... or, write us for the name and address of your nearest BOTFIELD Distributor.

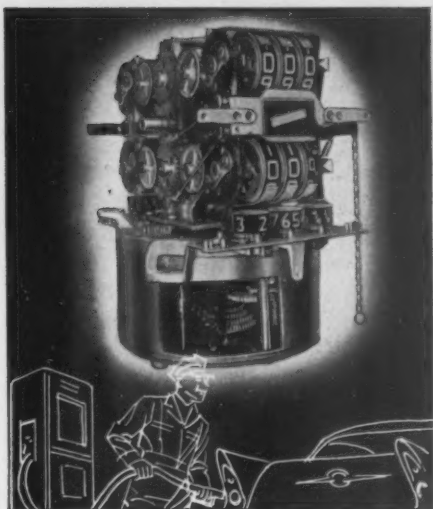


**Botfield**

**REFRACTORIES**

**ADAMANT and other ADA products**

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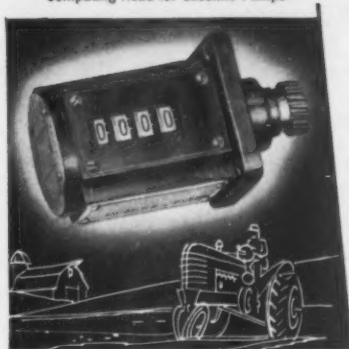
Computing Head for Gasoline Pumps



"Master Meter Duplicator" prints receipts for fuel oil delivered from trucks



"Vary-Tally" Multi-Unit Reset Manual Counter



Rev-Counter for all types of engines

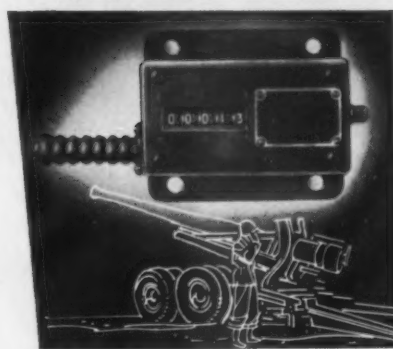


2-3-4 Convertible Counters (and others) for textile machinery

# Everyone Can Count on VEEDER ROOT

Everywhere you look in everyday life, you see a familiar face . . . the face of a Veeder-Root Counter or Computer. From gasoline pumps to fuel oil trucks to textile mills . . . in the home, on the farm, in business and commerce, in modern automated industry . . . Veeder-Root standard and special devices are keeping everything under *Control* . . . manually, mechanically, electrically. And the mathematical probabilities are mighty high that you can count on Veeder-Root, too . . . to your advantage and profit. Why not let us figure out how, *right now*?

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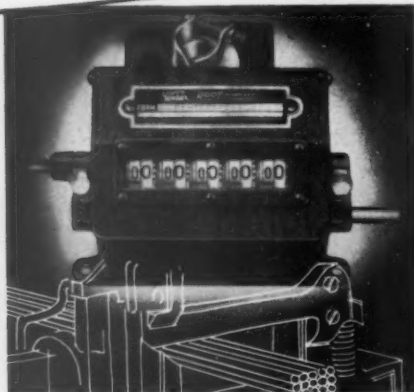
Recoil Counter for new 280 mm atomic cannon



Fuel-Remaining Counter for aircraft . . . subtracts as fuel is used



Small Square-Case Counters for office and other machines



Predetermining Counters for preventing short and over-runs on production machines



Range Timer . . . easy to read . . . easy to set

STOCKS OF STANDARD COUNTERS AVAILABLE AT—Greenville, S. C. • Chicago 6, Ill. • New York 19, N. Y. • Los Angeles • San Francisco  
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## SEALMASTER QUALITY...

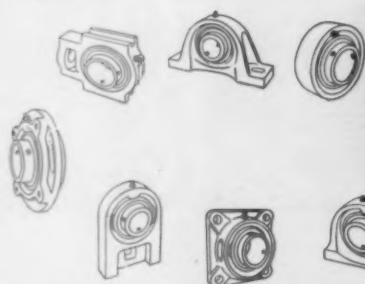
AS CLOSE  
AS YOUR  
PHONE!

Filling most of your bearing requirements is as simple as calling your local SEALMASTER Bearing Distributor. He carries a complete line of quality SEALMASTER Bearings in stock at all times . . . Pillow Block, Flange, Cartridge, Flange-Cartridge and Take-Up Units. When your requirements call for something special he will expedite your order to our factory. You can be certain your order will receive our prompt attention.

When you have a bearing problem or require engineering assistance your SEALMASTER Field Representative is on call. These men have become valued consultants and friends to many of America's leading manufacturers.



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### SEALMASTER BEARINGS

A DIVISION OF STEPHENS-ADAMSON MFG. CO., 51 RIDGEWAY AVE., AURORA, ILL.

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## Standardization

(Continued from page 76)

peting articles, whether standard or not, are recognized by the consuming public as performing identical functions sales in a given day will go to the seller offering the lowest price. Competing sellers will be forced to meet this price if they are to stay in the market. Thus, there results identity of selling prices. But similarity, or even identity, of price resulting from consumer acceptance of the fact that the goods offered are identical in operation and performance results normally from competition and does not evidence a conspiracy.

### Abuses of Standardization

Jacobs' explanation of the legal hazards involved in standardization were largely a rationale of the stand taken by the Department of Justice. In essence, his explanation went like this:

Some trade associations and companies have abused the standards programs. They have utilized them for the purpose, or with the effect, of eliminating competition. They are occasionally allied with schemes to promote price fixing and production control, and to exclude competitors from a market. Group activity toward these ends raises basic and classic antitrust problems.

Why have standardization programs been so abused? What are the characteristics of standardization which, in an antitrust context, aid this misuse? These characteristics are threefold.

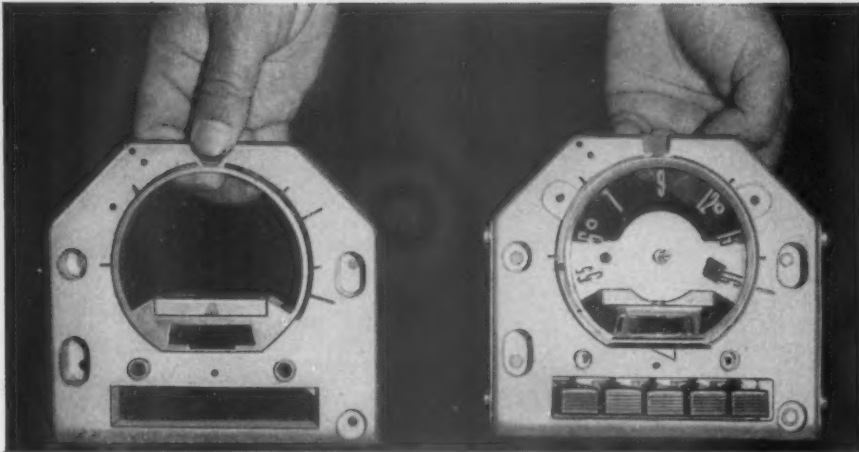
First, standardization generally involves group or collective action. Collective action toward an objective is frequently illegal, whereas individual and unilateral action toward the same objective might be entirely legal. This is highlighted by the language of Section 1 of the Sherman Act, which declares illegal all contracts, combinations, and conspiracies in restraint of trade. This language contemplates more than mere individual action. One manufacturer, acting independently, may decide for valid business reasons, and without fear of

(Please turn to page 314)



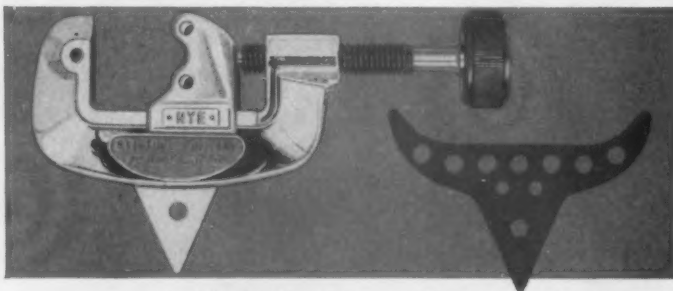
# DIE CASTING REPORT

Half a million --- or a few hundred  
--- designing parts for die casting  
can pay off big!



**Radio Dial Housing:** Production better than half a million. Features: thin walls and cast retaining grooves for close fit. Non-corrosive zinc alloy. Mounting bosses, normally welded on steel, are integral. Accurate cored recesses for tone control.

Low production items, as well as those in the millions are often economical to die cast. What is the yardstick? There are many. Costs may be cut and production profits increased where intricate design and difficult contours may be impractical by other means. Die casting may save on machining; eliminate component parts and thus cut down assembly; provide more economical type of surface for plating. No matter what your production schedule may call for — investigate die casting before you decide. Let Precision engineers show you what can be done in aluminum, magnesium and zinc to lower your costs!



**Resists shock and torque:** Plumber's tool features perforated steel insert in zinc alloy frame. Production several thousand. Result: maximum strength, functional design at minimum cost. Chrome plating adds to wear resistance and sales appeal.



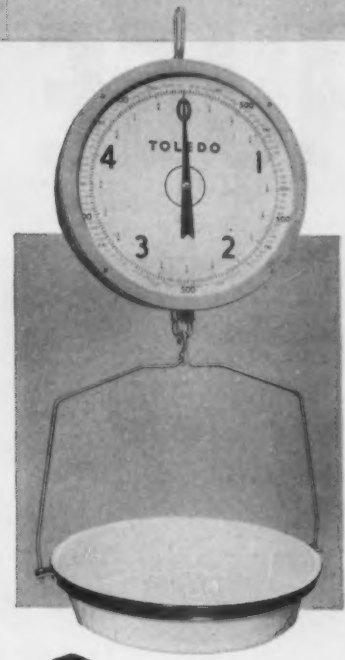
**PRECISION CASTINGS CO., INC.**

A SUBSIDIARY OF **Harrisburg Steel**  
CORPORATION

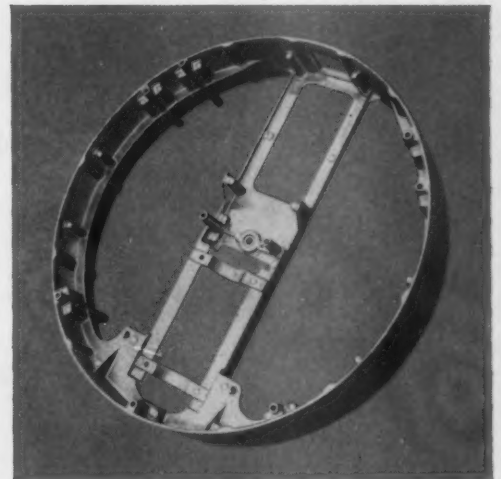


FAYETTEVILLE, N. Y. — SYRACUSE, N. Y. — CORTLAND, N. Y. — NEW YORK, N. Y.  
CHICAGO, ILL. — CLEVELAND, OHIO — KALAMAZOO, MICH.

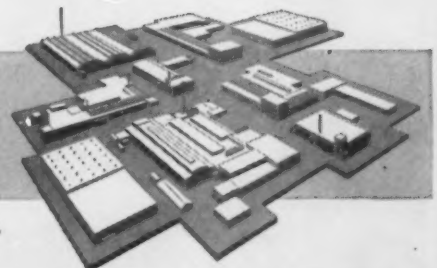
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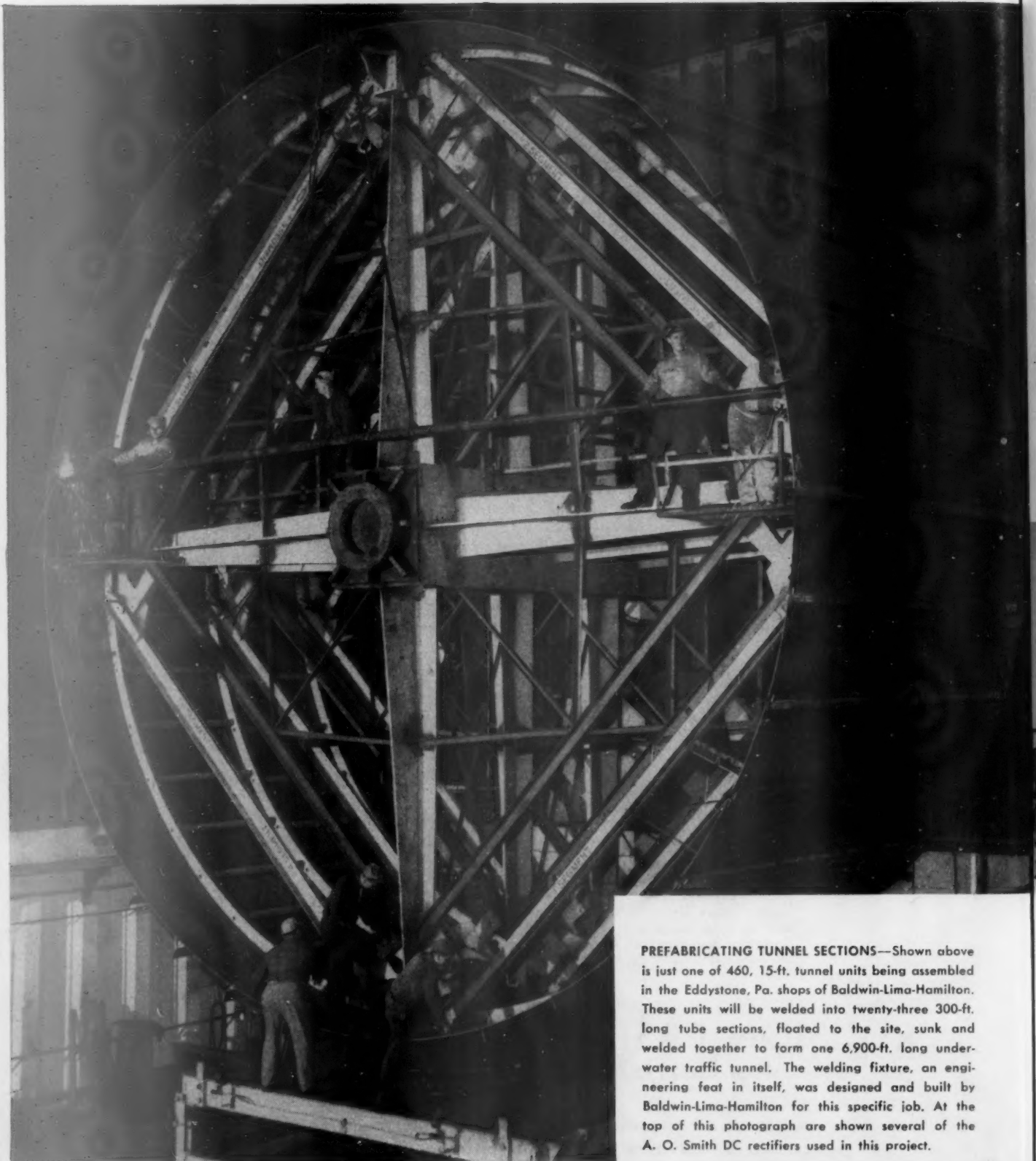
**Aluminum dial support:** Annual production in the low thousands, but die casting this unit saved weight, assembly time and machining. As an integral part of every scale, design changes are few; parts can be ordered from standing die, as needed.



Look for these two symbols when you deal with a die casting supplier. They are your assurance of quality castings and high production standards. Precision is a pioneer member of the American Die Casting Institute and one of the founders of the Certified Zinc Plan.



# HUGE UNDERWATER



**PREFABRICATING TUNNEL SECTIONS**—Shown above is just one of 460, 15-ft. tunnel units being assembled in the Eddystone, Pa. shops of Baldwin-Lima-Hamilton. These units will be welded into twenty-three 300-ft. long tube sections, floated to the site, sunk and welded together to form one 6,900-ft. long underwater traffic tunnel. The welding fixture, an engineering feat in itself, was designed and built by Baldwin-Lima-Hamilton for this specific job. At the top of this photograph are shown several of the A. O. Smith DC rectifiers used in this project.

# R TRAFFIC TUNNEL

**A. O. Smith electrodes used for over 910,000 ft. of welds. Baldwin-Lima-Hamilton tackles tough Hampton Roads tunnel contract... uses SW-10's, SW-15's, SW-44's, and SW-35's for the manual welds.**

On a job this tough, Baldwin-Lima-Hamilton Corp., Philadelphia, Pa. knew there could be no margin for error. They specified A. O. Smith electrodes for the manual welding.

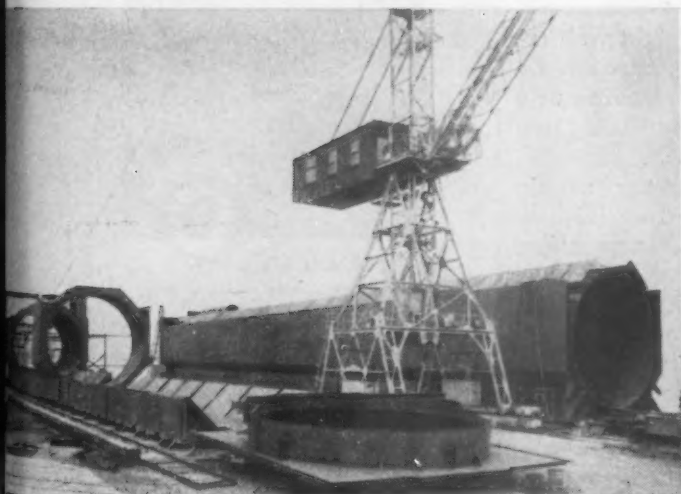
The work involved pre-fabricating 15-ft. double-shelled tunnel sections and welding them together to form one huge 300-ft. tube section 33 ft. in diameter. The larger sections have concrete poured between the shells, and cofferdams or bulkheads welded over the open ends. Twenty-three 300-ft. sections will be floated to the site and sunk in position to form the 6,900-ft. underwater tunnel.

Upon completion of the contract — which also includes construction of better than a mile and a half

of approaches—more than 215,000 lbs. of A. O. Smith electrodes will have been used. Specifically — over 45,000 lbs. of SW-10 (E-6010) . . . 30,000 lbs. of SW-35 (E-6020) . . . 95,000 lbs. of iron powder SW-44 (E-6024) . . . and 45,000 lbs. of SW-15 (E-6013).

Mr. Frank Iapalucci, director of welding on the project, specified A. O. Smith electrodes. He knows A. O. Smith electrodes give him quality and uniformity . . . welds that are right the first time . . . top production at lowest overall costs.

If your job demands top quality welds every time, talk to your A. O. Smith representative. Or — write to A. O. Smith Corporation, Welding Products Division, Milwaukee 1, Wisconsin.



At left side of photo, complete 15-ft. sections, with concrete already poured between inner and outer shell, rest in shipway. There they will be welded into large 300-ft. section as shown on the right.



Frank Iapalucci, Baldwin-Lima-Hamilton's director of welding, and Dave Buerkel, A. O. Smith welding representative, compare scale model tunnel section with blueprints to determine welding needs.

**PRODUCED BY WELDERS — FOR WELDERS**  
Because welding is our full-time business, we can offer you America's finest welder-proved electrodes, machines and accessories.

Through research  . . . a better way

**A.O. Smith**  
CORPORATION

WELDING PRODUCTS DIVISION

Milwaukee 1, Wisconsin

INTERNATIONAL DIVISION: MILWAUKEE 1, WISCONSIN



**"UPSIDE-DOWN HAND TEST"  
PROVES SBS-60 IS ALMOST**

**IMPOSSIBLE  
TO WASTE!**



**SBS-60**  
**CREAM DEODORANT SOAP**  
**Saves up to 50%**  
**on soap costs!**

The above photograph *proves* that no other soap can match the *real economy* of SBS-60 Cream Deodorant Soap.

An entirely *new type* of skin cleanser, SBS-60 is a white, opaque, thick-bodied cream that is economically dispensed, and for all practical purposes, impossible to waste.

No matter how efficient your present skin cleansers . . . SBS-60 Cream Deodorant Soap can bring you savings up to 50%. Get all the facts in detailed "question and answer" literature—mail the coupon *now!*



Dispensed from "throw-away" container—no costly maintenance. One "C-60" dispenser replaces 3 to 6 conventional soap dispensers.



Sugar Beet Products Co.  
Chemical By-Products Division  
302 Waller St., Saginaw, Mich.

Canadian Subsidiary  
Chemical By-Products, Ltd.  
8 Ripley Ave., Toronto 3, Canada

.....  
\* SUGAR BEET PRODUCTS CO.  
\* 302 Waller St., Saginaw 67, Mich.  
\* GENTLEMEN:  
\* Send detailed "question and answer" literature  
\* on SBS-60 Cream Deodorant Soap.  
\* NAME \_\_\_\_\_  
\* TITLE \_\_\_\_\_  
\* COMPANY \_\_\_\_\_  
\* ADDRESS \_\_\_\_\_  
\* CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_  
\* .....

For More Information Circle No. 399  
on Inquiry Card—Page 17

## Standardization

(Continued from page 310)

antitrust complications, to standardize his line or to stop producing other items. However, when he does this as part of a group decision, antitrust considerations arise.

A second characteristic that facilitates abuse is the uniformity of product which results from standardization. This provides a common denominator for agreements to fix prices or to participate in other illegal action. Courts have recognized this, and have pointed out that it is easier to reach the goal of uniform prices on a standard product than on one which is not standard. One court has even said that where there is a standardized product there is a tendency toward uniformity of price.

### Impact on Competition

There is justification for being concerned over the competitive impact of product standardization when there are present also uniform prices, standard discounts, and other identical practices, followed by a large part of an industry. In such a context, standardization of products might well be, and in fact has been, cited as one of the "plus factors" leading to a conclusion that price fixing existed in an industry.

This suggests a very simple precaution. Where you have a standard product, every effort should be made to avoid all other indicia of agreement. As one court puts it, the standard product should "be permitted to enter the channels of commerce unfettered by any restrictions which might impair such competition as otherwise exists."

A third hazardous characteristic of standardization programs, from the antitrust viewpoint, is that they resemble, and sometimes directly involve, agreements to refrain from producing non-standard products. And, of course, generally speaking, agreements to limit production are not permitted under the antitrust laws. It is not easy to resolve the question of whether or not an

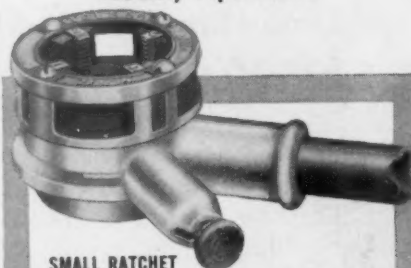
(Please turn to page 318)

## AN OLD FAVORITE

and 2 new  
**Power Drives**

by **TOLEDO**

National Standard for  
Quality Pipe Tools



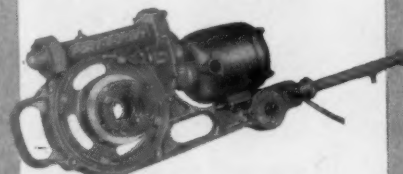
**SMALL RATCHET  
PIPE THREADERS**

Ideal for close corner work—instant change, drop-out die head—cuts easy with finest precision made tool steel dies—easily removed for regrinding—up to 2". Excellent for use with power drives.



**NO. 78 PORTABLE POWER DRIVE**

Lightweight—powerful—weighs only 75 lbs.—sturdy folding legs—built like a machine tool. See it at your supplier's today. Handles 1/4 to 2" pipe.



**NO. 68 TOLEDO PORT-A-PONY**

A 26 lb. power drive—carry it anywhere. It threads, cranks, pulls, lifts—versatile and powerful. Add power to hand equipment. Write for complete information.

**TOLEDO PIPE THREADING  
MACHINE COMPANY**  
TOLEDO 4, OHIO

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS  
**TOLEDO**  
PIPE THREADERS • PIPE WRENCHES • PIPE MACHINES

For More Information Circle No. 400  
on Inquiry Card—Page 17  
For More Information Circle No. 401  
on Inquiry Card—Page 17→

Feed Screws  
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# SCREWS

*any type...any size...  
 any quantity!*

Square threads, acme threads, buttress threads, V-threads, ground threads —one screw, or ten thousand or more— whatever you need, you can get it at Illinois Gear!

If you want highest quality and precision, plus on-time delivery (even if we have to work around-the-clock to meet your emergencies), then send your next order to Illinois Gear!



Look for this mark  ... the symbol on finer gears



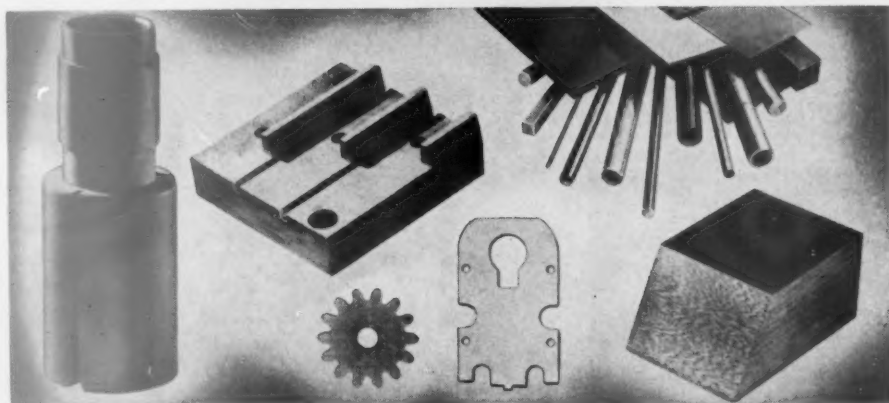
*Gears for Every Purpose ... one gear or 10,000 or more*

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# C-D-F PLASTICS AND FIBRE

## One-Source Buying Simplifies Purchasing, Speeds Production



### C-D-F DILECTO LAMINATED PLASTICS IN MANY GRADES FOR EVERY APPLICATION

Tested over the years by leading manufacturers of electrical equipment, C-D-F Dilecto has been proved to have outstanding electrical and physical properties and a uniformity of quality that can always be depended on.

Dilecto is made in many grades and is available in the form of sheets, tubes, rods, and complete fabricated parts. Bases available: glass mat, woven glass cloth, cotton

mat, cotton fabric, cellulose or asbestos paper, woven asbestos fabric, asbestos mat, woven nylon fabric. Resins include phenolic, melamine, silicone, polyester, epoxy, Teflon\*.

C-D-F gives fast service on raw stock orders, has complete machining and fabricating facilities. Call your C-D-F sales engineer for purchasing and technical help, or write C-D-F for new catalog D-55.



### C-D-F Celoron MOLDED PLASTICS combine high strength, durability

If you buy gears, couplings, insulators, molded plastics of almost any type—get the facts on C-D-F Celoron, a molded-macerated and/or combination laminated material bonded with phenolic resins. Celoron is strong enough for automotive timing gears, versatile enough for the smallest molded insulating part or the largest electromechanical supports. Get Celoron samples by writing to C-D-F. Also ask for Bulletin DC-54.

### DIAMOND VULCANIZED FIBRE

in any form, size

Arc-resistant, arc-quenching, non-corroding, and mechanically strong, Diamond Fibre's high uniform quality is assured by America's most experienced fibre makers. Available from C-D-F in sheets, rolls, strips, tubes, rods, formed and machined specialties. Write for the new Diamond Fibre Catalog DVF-55.

### Complete Line of Plastics, Fibre, Mica Products

The advantages of "one-source" buying were recently summarized for purchasing agents by Continental-Diamond Fibre, one of the country's largest manufacturers and fabricators of electrical insulation and plastics products. No other supplier in its field, explains C-D-F, offers as wide and varied a range of products. One call to a nearby technically-qualified C-D-F sales engineer puts the purchasing agent in touch with a well-integrated, large company with modern producing and fabricating plants. Low competitive prices and fast service are shown to be direct results of C-D-F's post-war expansion and modernization.

### Saving P.A.'s Interviewing Time

A recent poll among purchasing agents indicates that buyers spend 20 to 50% of their time talking to salesmen. Shorter, fewer interviews with the man from C-D-F, each covering the ground of four or five separate sales calls, give the purchaser more time for improving his own job. And the electrical insulation and plastics buyer knows that the C-D-F sales engineer is thoroughly familiar with his problems, can give expert advice in the design stage and offer dependable quality-control service.

### Many New C-D-F Materials

Among the new and specialized dielectric products made by C-D-F are flexible insulating tapes of Teflon\*, mica combinations, silicone rubber, and silicone-varnished fiber glass. Other new products are metal-clad laminates for printed circuits; post-forming grades of Dilecto laminated plastics (see elsewhere on this page for details); intricate molded parts; fire-resistant plastics; silicone, epoxy, and polyester glass-based laminates.

### One-Source Buying Cuts Costs

Using C-D-F as a single large, reliable source of supply for all vulcanized fibre and laminated and molded plastics products speeds the acquisition of technical information, effects closer control of inventory, makes possible group buying of diverse materials which, bought separately, might prove far more costly. One C-D-F salesman, replacing often as many as twenty salesmen, gives the purchasing agent simplified buying, improved products—at lower cost.

BALTIMORE 14, MD. 3019 Oak Forest Drive BIRMINGHAM 1, ALA. American Life Building BOSTON SALES OFFICE 1245 Hancock St., Quincy BUFFALO 3, N.Y. Ellicott Square Building CHICAGO 11, ILL. 1201 Palmolive Building CLEVELAND 14, OHIO 550 Leader Building DAYTON 2, OHIO 221 Third National Building DENVER 2, COLO. Ernest & Cramer Building	Northfield 5-0964 3-6131 Granite 2-2150 Washington 3929 DElaware 7-6266 Cherry 1-5220 Adams 4291 AComa 2-2236	DETROIT 35, MICH. 201 Offcenter Bldg. FT. WORTH 7, TEXAS 3414 Camp Bowie HARTFORD SALES OFFICE Hartford-Jackson 9-0397 HOUSTON 4, TEXAS 3514 Crawford Street INDIANAPOLIS 5, IND. 709 E. 38th Street KANSAS CITY 11, MO. 406 W. 34th St., Room 11 MILWAUKEE 2, WIS. 828 N. Broadway MINNEAPOLIS 2, MINN. 610 Plymouth Bldg.	Broadway 3-0447 Fannin 3339 Hartford-Jackson 9-0397 Capitol 5525 WAlnut 5-9803 Logan 6014 BR 1-2980 Federal 3-3388	NEW YORK 17 290 Madison Avenue, Room 501 OMAHA 3, NEBR. 110 North 40th Street PHILADELPHIA DISTRICT SALES OFFICE Bridgeport, Pa. PHOENIX, ARIZONA P.O. Box 1587 PITTSBURGH 21, PA. 309 Shields Bldg. RICHMOND 22, VA. 101 Oranoco Avenue ST. LOUIS 17, MO. 2683 Big Bend Blvd. SPARTANBURG, S.C. 834 Hayne St.	Murray Hill 6-0870 Atlantic 6548 Broadway 5-0800 ALpine 8-7893 Churchill 1-0969 Richmond 32210 Mission 5-2253 Spartanburg 3-6397	TULSA, OKLA. 204 S. Cheyenne St. Pacific Coast Representative MARWOOD LIMITED SAN FRANCISCO 3, CAL. 357 Ninth Street SEATTLE 4, WASH. 1714 First Avenue, South PORTLAND 4, ORE. 209 S.W. First Avenue LOS ANGELES 13, CAL. 320 East 3rd Street Canadian Representative DIAMOND STATE FIBRE CO. OF CANADA, LTD. 46 Hollinger Rd., Toronto 13, Ontario, Can. EXPORT DEPARTMENT: BRIDGEPORT, Pa., U.S.A.	5-6189 Hemlock 1-7893 Elliot 4747 Beacon 5123 Mutual 3241
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# PURCHASING NEWS



## MICABOND INSULATING COMPONENTS help you build a better motor

C-D-F built-up or bonded mica products are being used to assure quality insulation in America's best-selling motors and generators. Only the finest mica splittings are used in Micabond; thus Micabond parts have uniform high heat-resistance and dielectric strength.

**Forms of Micabond available:** Sheets—Tubing—Flexible Tapes (with cotton, silk, paper, woven glass, and Mylar\* backings)—Fabricated Parts in the form of Segments, "V" Rings, Slot Liners, Washers, Punchings of various shapes.

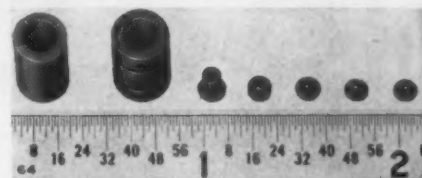
Make C-D-F your dependable source for mica products, and assure yourself strictly-followed specifications, low costs, fast deliveries. Call your C-D-F sales engineer or write for samples of Micabond materials.

Micabond Catalog M-55 is also yours for the asking.



## C-D-F plastics fabrication offers undivided responsibility for quality, delivery

Many manufacturers using machined and fabricated plastics parts have learned the economy of letting C-D-F do the fabrication for them—faster, more efficiently! By the time a manufacturer experiments, tests, and probably rejects much expensive raw material, C-D-F's experience with all plastics work can complete and ship the order without waste and without delay.



C-D-F's small-parts machining and inspection gets results like this. These automotive electrical insulators are mass-produced with uniform high quality at rock-bottom prices for the manufacturer.

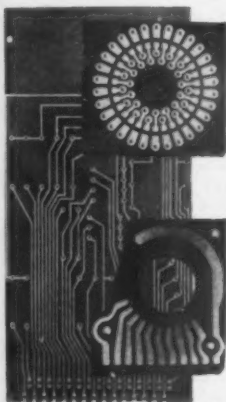
At C-D-F's machine shops in Newark, Del., and Valparaiso, Ind., fabricating is done near the presses that produce the raw materials. No time is lost in handling materials; special production runs may be scheduled to coincide with machining operations; C-D-F's "experience bank" provides innumerable short cuts, little tricks that result in lower prices for the purchaser.

### Simplified Production, Storage

Ultimate advantages to you in choosing C-D-F to machine and fabricate your plastics and fibre parts: Assurance of delivery to meet your production schedules; elimination of waste materials, shortages, rejects; uniform high quality of every fabricated part. These become C-D-F's responsibility, not yours.

## Dependable printed circuits rely on C-D-F metal-clad dielectric materials

Printed circuits etched from C-D-F Metal-Clad Dilecto Laminated Plastics are proving themselves in thousands of TV, radio, and communications equipment applications. Clad with copper foil and having superior heat-resistance, bonding strength and mechanical and electrical properties, Dilecto printed circuit materials are based on epoxy, phenolic, and Teflon\* laminated plastics. Low dielectric loss, operating temperatures up to 200°C. in certain grades are characteristics of C-D-F Metal Clad Dilecto. High bond strength of foil to plastic makes punching and machining readily possible either before or after etching. Write for new Catalog D-55.



Photos Courtesy of Photocircuits Corporation, Glen Cove, N. Y.

## C-D-F Flexible Insulating Tapes have high heat-resistance, durability

Pressure-sensitive, thermoplastic, and thermosetting insulating tapes for all types of electrical equipment uses are made by C-D-F from silicone varnish, silicone-rubber, Teflon\*, and Micabond, with various supporting fillers and backing materials. High-heat electrical applications are served by these durable materials and by the wide range of backings in which the tapes are provided.

**Color Identification**—C-D-F tapes of Teflon are made in the standard RETMA colors for easy wire identification in assembly and repair of electrical equipment. Call your C-D-F representative, or write for test samples.



## NEW C-D-F SPIRAL TUBING



Here's a low-cost spirally-wound paper-plastic tubing available in 18 grades for a wide range of uses. Round, square, rectangular shapes for use as coil forms, insulating tubes, paint rollers, shipping containers, bushings. These are just a few of the many applications. Small sizes, thin walls are no problem. Write for 8-page Technical Folder ST-53, which gives properties, sizes, tolerances. Or call your C-D-F representative.

\*duPont trademarks

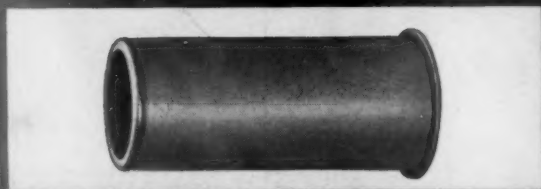


# CONTINENTAL DIAMOND FIBRE

CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.

NEWARK 41, DELAWARE

# BAM!



## 4 OPERATIONS IN 1 STROKE CUT COSTS 29%

**Bendix Aviation** faced a common problem: cost of this fuel-pump housing had steadily increased until the product might have to be abandoned.

Could a way be found to retool the original housing at a lower cost? Presteel engineers, backed by 73 years of stamping know-how, went to work.

They designed a brand-new 4-draw tooling combination to do most of the job in one fast operation. Out went one annealing operation, three separate handling operations, and the use of three additional presses!

**Result:** Manufacturing costs, less materials, cut 29% . . . labor requirements reduced substantially, offsetting mounting raw material costs. What's more, production time was slashed 83.3%, with 18 days' previous output produced in just three days! And Bendix could afford to use the original housing design again!

**If You Have** a troublesome stamping problem, where cost, delivery, or assembly is a big factor, just let us tackle it. Our 73 years of engineering and production skill is at your service. Send us the coupon now.

### WORCESTER PRESSED STEEL COMPANY



Your part has a precedent at Presteel

724 Barber Ave., Worcester 6, Mass.

Please ask your representative to call ☐

Please send newest brochure ☐

Name

Title  Company

Street

City  Zone  State

### Standardization

(Continued from page 314)

agreement to adopt a standard, without more, violates the law. But if you couple with such an agreement an additional undertaking to discontinue the manufacturing of non-standard products, the answer is easier. The latter definitely should be avoided.

### Sales Tax

(Continued from page 83)

separating the price of the materials he uses from the price of the labor to apply the materials to his customer's shoes, so as to resell or retail, in effect, shoe findings to his customers, apart from his services, it appears that he would be free to do so. If he and it may be fairly inferred that this shoe repairman does not make separate charges for the materials used and for the services rendered in making shoe repairs.

"The difficulty in applying this distinction is in determining whether the sale of materials used is an inconsequential element of the service transaction or whether the service rendered is a part of the sale.

"We do not think that the actual cost or monetary value of the materials used is determinative. On such a basis in the present case it would follow that the price of the materials on the average shoe repair job, being 50% of the total price, would be a consequential element of the transaction, making it a retail sale.

"However we think that the main consideration should be the purpose of the customer who primarily wishes to buy the skilled services of the shoe repair man because such services cannot be performed by the customer himself because he lacks the equipment, time or skill required. Under such circumstances, the sale of various grades or qualities of materials by the shoe repairman is really incidental to and but a means of rendering the services which his customers want."

(Please turn to page 322)

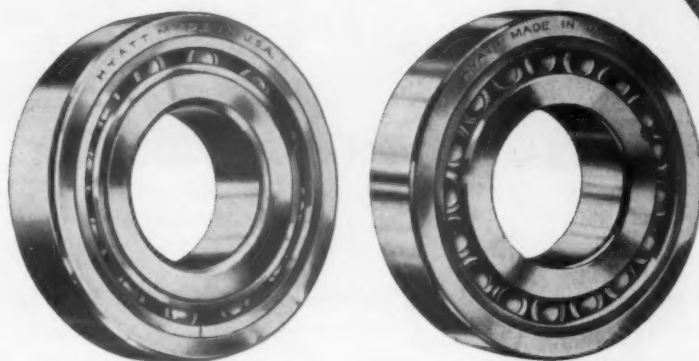
For More Information Circle No. 403 on Inquiry Card—Page 17

# HOW TO REPLACE A HYATT BEARING

by HY WHEELER, the sage of the socket wrench

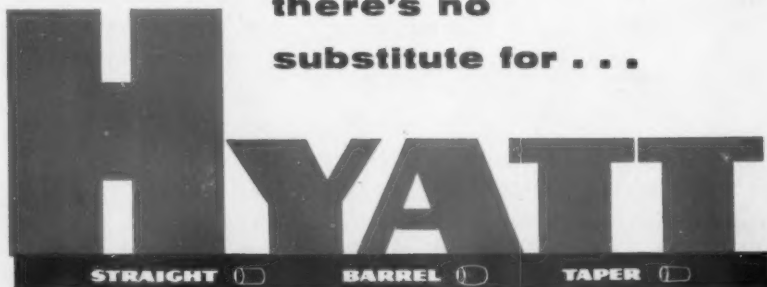
The big thing to remember, brother, is to *always* replace a HYATT with *another* HYATT of the same type and size. You know why? Because HYATTs are so precision-built they're *completely interchangeable*. You don't have to change the shaft or bore diameter a bit. This saves you trouble and keeps the boss happy, too, by making sure he gets his money's worth!

When you're ordering a replacement HYATT, just be *sure* to get the right one, either from the parts list put out by machine builders, or put down on your order all the markings from all the bearing parts.



And when the new bearing comes, be sure it's in this familiar blue and yellow box. When it comes to quality,

there's no  
substitute for . . .



**ROLLER BEARINGS**

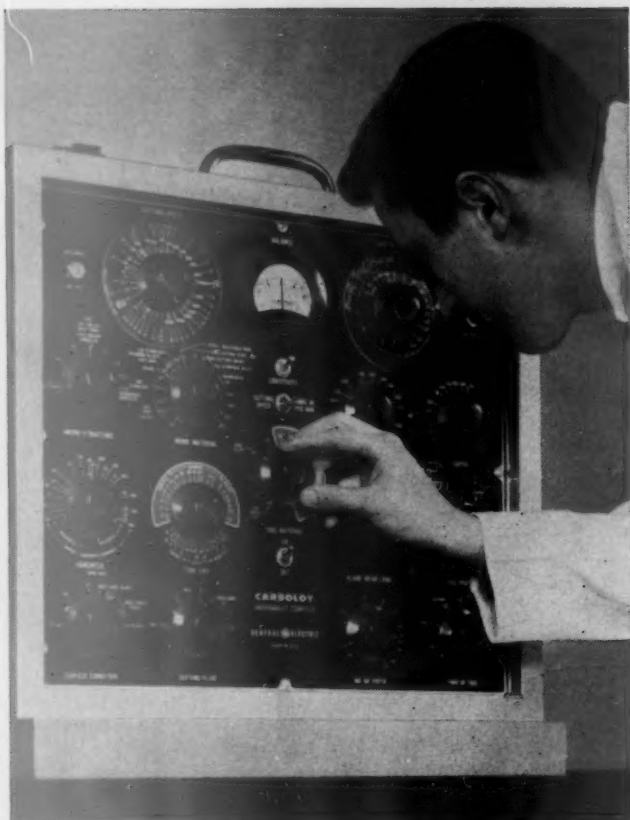
HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

For More Information Circle No. 404 on Inquiry Card—Page 17

FEBRUARY, 1956



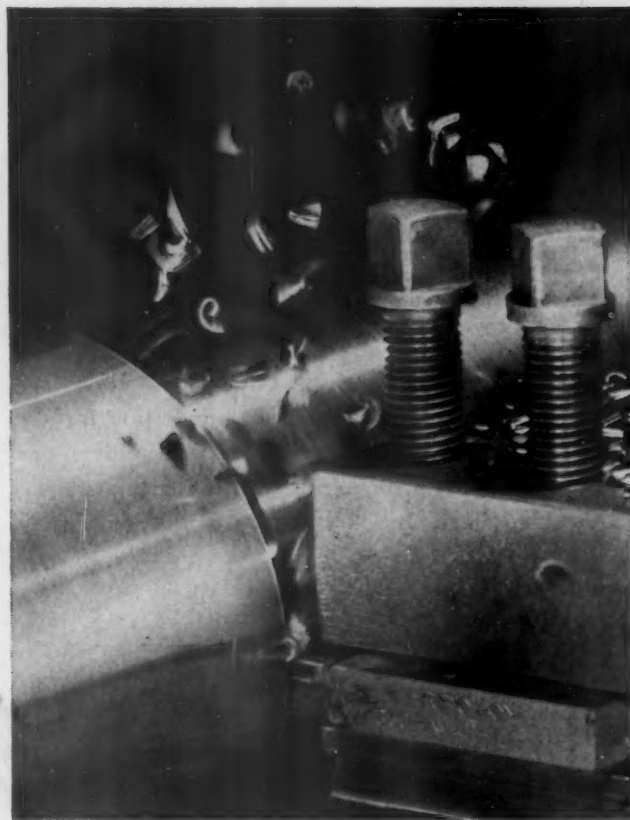
# FOUR PURCHASES YOU CAN CUT METAL AT THE



Carboly Machinability Computer accurately determines the most efficient setup conditions.

**1 Carboly® Machinability Computer.** By solving complex machining problems faster, more accurately than any other existing method, the Computer is a major help to every department concerned with metal cutting.

It will help production men increase output with less tool wear. It will cut out hours of non-productive setup time, and eliminate wasteful tryout runs. The Computer will also aid engineers in the selection of the proper grade of carbide . . . eliminating guesswork and money wasted on inadequate grades. Price of the Computer is \$495, f.o.b. Detroit.



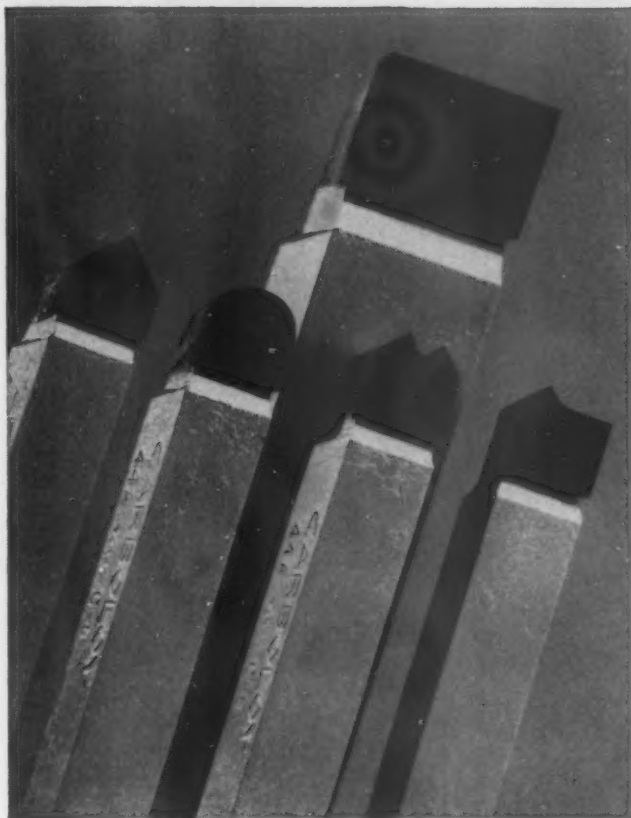
Carboly Grades 350 and 370 cut faster, wear longer. (Picture taken at 1/1000 second).

**2 Carboly Grades 350 and 370 for cutting steel.** Hundreds of in-plant comparison tests, run for tool engineers at the request of purchasing agents, have proved these extra-performance grades greatly outperform conventional carbides . . . and provide the lowest tool-cost-per-piece of any carbide on the market today.

There are no "equivalent grades" for Carboly 350 and 370, because these grades have a built-in structural rigidity that enables them to take deeper, more punishing cuts than do other carbides. They will cut faster, wear longer, and get more production from your plant's machine tools.

These Carboly products can immediately help your plant get maximum output from its machine tools . . . at lowest possible cost. For price lists and specifications, contact your local Authorized Carboly Distributor (he's listed in the Yellow Pages of your phone-book), or your Carboly Representative.

# MAKE TO HELP YOUR PLANT LOWEST POSSIBLE COST



Style C Standard Carboloy Tool and typical special shapes quickly adaptable from it.

**3 Standard Carboloy Tools.** The 13 Standard Tool styles can be used "as is," or quickly ground to special shapes, to handle up to 80% of your plant's braze-type tooling setups. By purchasing "standards," you'll eliminate many higher cost "specials," and reduce single-point tool inventories by as much as 30%.

Standards are immediately available. These versatile tools are stocked in grades to handle any job from roughing to finishing, on metals or nonmetals. And you can get off-the-shelf delivery plus tooling assistance from your local Authorized Carboloy Distributor.



New Carboloy Toolholders can be indexed quickly, easily . . . right in the machine.

**4 New, easier-to-use Carboloy Toolholders.** These precision holders cost much less than many of the premium holders now available, and they offer a combination of new design features found in no other holder on the market.

A shock-absorbent carbide pad permits the use of thinner, more economical throw-away inserts at increased speeds and feeds. The holders are so simple and accurate that they can be indexed in seconds, right in the machine. And, these versatile tools can be quickly adapted to many jobs for which you are now forced to purchase costly "specials."

## CARBOLOY

DEPARTMENT OF GENERAL ELECTRIC COMPANY  
11143 E. 8 Mile Ave., Detroit 32, Michigan

"Carboloy" is the trademark for products of the Carboloy Department of General Electric Company

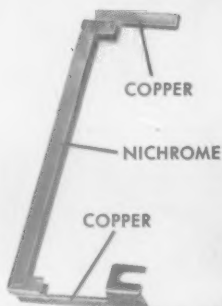
For More Information Circle No. 405 on Inquiry Card—Page 17

You get 3-way

## VERSATILITY

when you buy **EASY-FLO** and **SIL-FOS**

These low-temperature silver brazing alloys give you top versatility in these 3 basic elements of metal joining.



### VERSATILITY

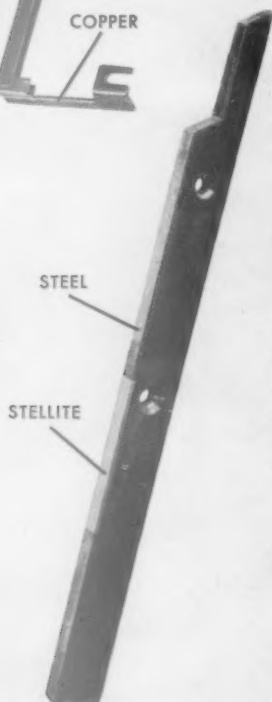
IN METALS

Between them, the EASY-FLO and SIL-FOS alloys will join practically all ferrous, non-ferrous and dissimilar metals and alloys that have melting points above the alloys' respective flow points.

### VERSATILITY

IN HEATING METHODS

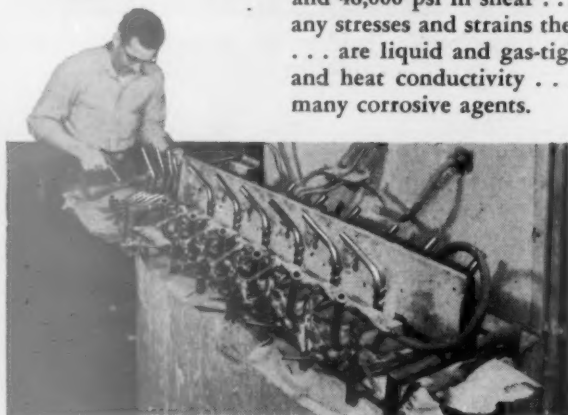
The EASY-FLO and SIL-FOS alloys work well with all . . . oxyacetylene, natural and city gas torches — gas-air burners — oil, gas and electric furnaces — electric induction, resistance or incandescent carbon — molten alloy or salt dip . . . take your pick.



### VERSATILITY

IN JOINTS

EASY-FLO and SIL-FOS naturally and consistently make joints that . . . go up to 130,000 psi in tension and 48,000 psi in shear . . . have the ductility to take any stresses and strains the metals they join can stand . . . are liquid and gas-tight . . . have high electrical and heat conductivity . . . offer strong resistance to many corrosive agents.



In the job shown here induction heating is used to braze steel handle bars to stems with EASY-FLO 35 — 6 at a time in 32 secs. The two jobs shown at left above are gas torch brazed with EASY-FLO 45.

### ALL THIS — PLUS ECONOMY

The alloy's low flow points, extreme fluidity and silver content combine to speed up brazing and cut costs to an amazing extent. Hundreds of manufacturers have standardized on EASY-FLO and SIL-FOS for all brazing. It will pay you to do likewise.

GET THE FULL STORY  
IN BULLETIN 20

It's full of  
useable  
ideas. Write  
for a copy  
today.



## HANDY & HARMAN

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DISTRIBUTORS IN PRINCIPAL CITIES

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TORONTO, CANADA  
MONTREAL, CANADA

There's no " . . . or equal " for EASY-FLO and SIL-FOS

## Sales Tax

(Continued from page 318)

The court then emphasized this feature that has a wide application in the computation of these taxes, the separation of the purchase price into the labor and the merchandise item.

"If a shoe repairman should desire to conduct his business by were to register as a seller and certify that he was purchasing for resale, then he would not be required to pay the tax to the distributor but would be required to collect the tax himself as a dealer or retailer from his customers on the price of the shoe findings sold to them.

"But if, as in the present case, the shoe repairman conducts his business as it is ordinarily conducted without making separate charges for labor and for materials, then he must pay the tax on the materials bought to the person from whom he purchases them.

"In other words," the court concluded, "where the sale or use of materials is only incidental to and a part of the services rendered by a shoe repairman to his customers in repairing their shoes, without his making any separate charges to them for such materials apart from his services, then the sales and use tax is to be imposed upon the sale of the materials to the repairman by the distributor."

### Tax on Total Bill

Recently the Ohio Supreme Court outlined the benefits from a breakdown in purchase contract charges when the charges include both material costs and labor. There charges had been made in the sale and recapping of automobile and truck tires in one invoice item with the memorandum added on the invoice, "Tax on material".

"It is obvious," said the court, "that where the seller recaps a customer's tire which includes a sale to the customer of the material put on the tire, the seller is liable for a collection of the sales tax based on the full amount he collects from his customer unless he bills the customer separately for the material."

(Please turn to page 324)

For More Information Circle No. 406 on Inquiry Card—Page 17



# For Precision use **BISHOP**



Platinum and Platinum Group Metals  
Stainless Steel Tubing  
Tubular Fabricated Parts  
Spinnerettes  
Hypodermic Needles and Syringes

Resistant to:  
Corrosion  
Heat  
Shock  
Stress  
Vibration

STAINLESS STEEL Small Diameter Tubing  
(.008" to 1.000" O.D.)

NICKEL\* and NICKEL ALLOY\* Tubing  
(up to .625" O.D.)

AIRCRAFT TUBING

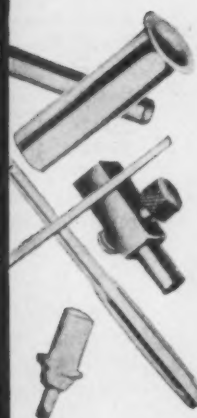
FABRICATED TUBULAR PARTS:

Bent  
Flanged  
Flared  
Milled  
Slotted  
Swaged  
Threaded

PLATINUM GROUP METALS AND ALLOYS:

Bimetals  
Electrodes  
Foil  
Laboratory Apparatus  
Precious Metal Catalysts  
Rhodium Plating Solutions  
Tubing  
Wire

RESEARCH, ENGINEERING  
AND DEVELOPMENT SERVICES



# METALS



**J. BISHOP & CO. PLATINUM WORKS**

Malvern, Pennsylvania

Serving Science and Industry Since 1842

Plants at Malvern, Pa., Fraser, Pa., Vineland, N. J. and Southern Pines, N. C.

\* Trademark International Nickel Company

FEBRUARY, 1956

For More Information Circle No. 407 on Inquiry Card—Page 17

323

# 2 ways

to more economical  
metal hose buying...

## READY-MADE CONNECTIONS

Your local Flexonics stocking distributor is your primary source for every flexible connection requirement. He handles the most complete line of flexible metal hose products available anywhere and has the facilities for assembling a wide range of flexible connections, made to your order.

## "MAKE YOUR OWN" CONNECTIONS

Where your requirements make it desirable that you have a source of "tailor-made" flexible connections right in your own plant, ask your Flexonics distributor to set you up with Type RW-81 hose in your most commonly used sizes. Put in an assortment of Rex-Tite couplings and you will have the "makings" from which any maintenance man can assemble the required connections.

Whether you prefer ready made flexible connector assemblies or make your own, you'll find your Flexonics distributor the number one place to go for any flexible metal hose requirements. He offers four advantages that add up to more economical buying for you—

1. A complete selection from a single source
2. Fast, on-the-spot service
3. Highest value standards
4. Backing by a reputable manufacturer

Put these advantages to work for you and make metal hose buying more efficient. Call your local Flexonics distributor, today. Ask him for a copy of Flexon Metal Hose Catalog No. 152. It gives a complete rundown on all Flexon metal hose products and should be in every hose buyer's file. If you prefer, we will be happy to mail you a copy along with the name of your Flexonics distributor.

# Flexonics Corporation

CHICAGO METAL HOSE DIVISION

Flexon identifies products of Flexonics Corporation that have served industry for over 53 years.



1316 S. THIRD AVENUE • MAYWOOD, ILLINOIS

— FORMERLY CHICAGO METAL HOSE CORPORATION —

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components. In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

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## Sales Tax

(Continued from page 322)

rately for material furnished and for labor or services performed. In this latter event the seller is liable for the collection of the sales tax only for the material furnished.

"We do not mean to hold," concluded that court, "that there must be any particular or scientific method of bookkeeping or invoicing to show a separation of material from labor or service performed in order for a transaction to be exempt from the sales tax so far as the labor or service is concerned, but we hold that the separation must be such as to clearly show in the invoice or charge what the sale price is for the material and what the charge is for labor or service."

## P.A., Salesman And The Interview

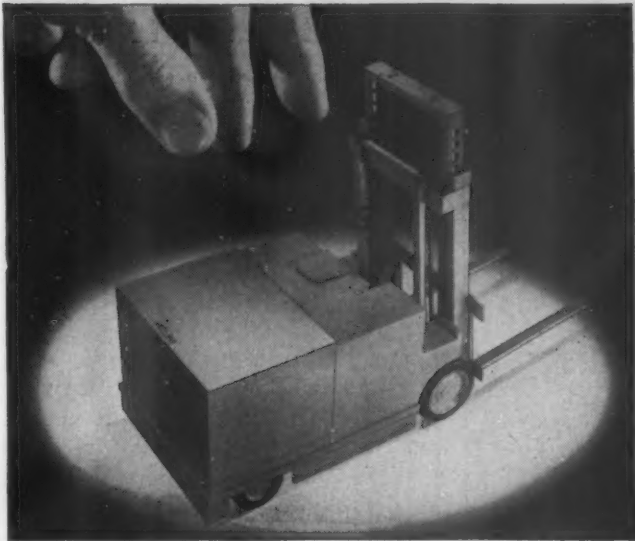
(Continued from page 91)

issues luncheon invitations via long distance phone expressly to avoid having his customer pay. One of the conditions of his invitation is that he be allowed to pick up the tab. Under such conditions it would be undiplomatic to make an issue of it. It is plain that he really wants to do it.

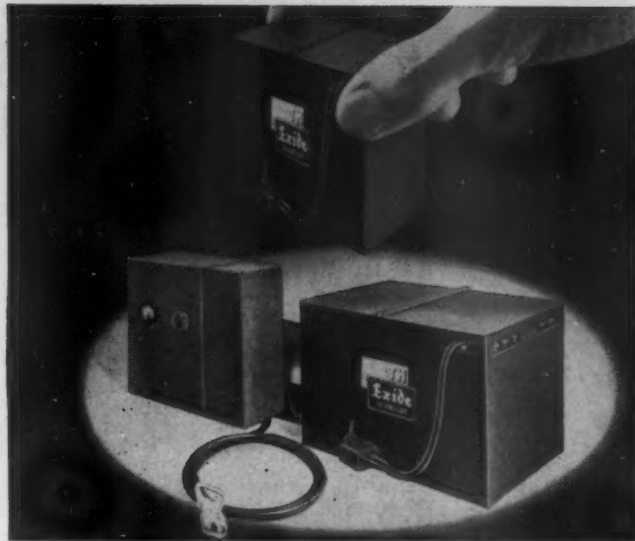
Most purchasing men become good judges of character and personality. The interview is, of course, an excellent and logical opportunity to make such observations.

If one applies himself, this faculty will prove to be a very helpful aid in countless instances and decisions. As every purchasing agent knows, it is just as important to know your supplier as to know his product. It will help us to avoid the luncheon date that might later prove embarrassing. It will sometimes wave a warning flag when that contract lies before us on the desk, awaiting our signature. It will alert us when that telephone voice doesn't carry the conviction that its owner intends to do what he is promising to do.

Equally important, it will give us the well founded confidence that we can rely utterly upon the intent and the promise of the sincere and capable supplier.



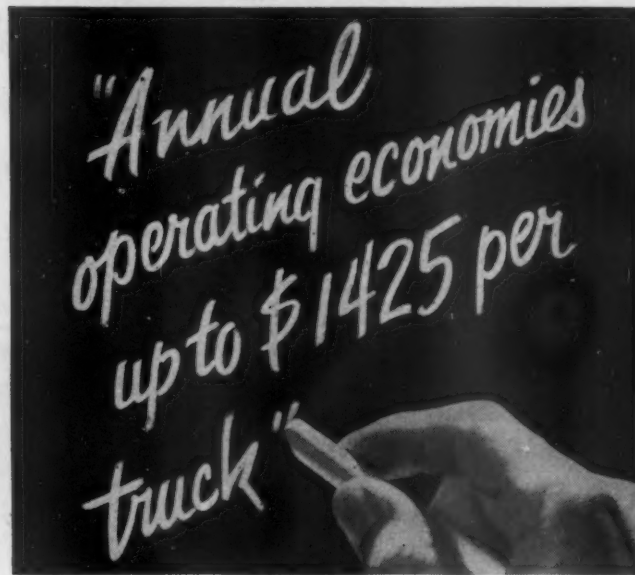
**YOU BUY ONLY THE TRUCK CHASSIS.** Choose any make of battery-powered electric industrial truck. Buy one truck or an entire fleet.



**LEASE POWER PACKAGE FROM EXIDE.** You receive famous Exide-Ironclad Batteries, plus the charger. Monthly cost is surprisingly low.



**SAVE UP TO 33% CASH OUTLAY.** This new Exide leasing plan brings initial cost for electric trucks down within range of trucks using any other kind of power.



**PAY BATTERY LEASING COSTS OUT OF OPERATING ECONOMIES.** Exide-powered electric trucks cost less to own and operate. Savings are tremendous!

## SAVE UP TO 33% CASH OUTLAY ON ELECTRIC TRUCKS

New Exide leasing plan points the way to lower materials handling costs

Look how many ways Exide-powered electric industrial trucks can save you money just through operating economies: no wasted power when the truck is stopped; faster handling of materials; no unscheduled downtime; no high repair bills. *Added safety feature*—no bothersome fumes or noise. You pay for Exide power as you use it—the same as with other forms of power. But electric trucks give you over twice the operating life. Additional shifts multiply the economies.

Now you can have all these advantages at a new low initial investment—through the Exide leasing plan. And you get famous Exide-Ironclad heavy duty batteries with the unique positive plate.

Electrolyte flows easily through slotted power tubes to reach more active material faster. Result: an Exide-Ironclad delivers more power quicker for a longer time at lower cost.

Get all the facts and figures on how the Exide leasing plan can meet your particular requirements. Call your Exide sales representative. Talk with any electric truck salesman. Send the coupon.

# Exide

Send for  
complete  
details



Exide Industrial Division  
The Electric Storage Battery Company  
Phila. 2, Pa.

Send me details on the new plan for cutting cash outlay on electric trucks.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

14





## Looking For **LOW COST** Stainless Steel?

... then you want

### **MicroRold® 430 Sheet**

MicroRold Type 430 is a straight chromium-stainless with a nominal composition of 17% chromium. Though it is less resistant to corrosion, it retains all of the other desirable qualities of stainless and has proven very satisfactory in a wide range of mild corrosion applications.

MicroRold 430 is the least expensive of all stainless types because it does not contain nickel. This results in a 7¾¢ per pound difference in base price between Type 430 and Type 302, the most popular higher grade stainless. A saving of \$155 per ton is possible and is of merit to cost-conscious fabricators.

MicroRold Type 430 sheets are available in thicknesses .005" to .109" with 2B or 2D finishes; and in thicknesses .010" to .109" in No. 3, 4 and 7 finishes.

Send for your copy, "Care and Use of 430 Stainless".

## **Washington Steel Corporation**

2-N WOODLAND AVE.

WASHINGTON, PENNSYLVANIA



For More Information Circle No. 410 on Inquiry Card—Page 17

## Save on Your **INDUSTRIAL TRACK**

**FULLY  
GUARANTEED**

## **FOSTER QUALITY RELAYING RAILS**

Lower installation and maintenance costs—handle more cars better. Foster nationwide warehouses also stock every New Rail Section 12# through 175#, Switch Material and Accessories to meet your specific job requirements.

SEND FOR CATALOGS P-2

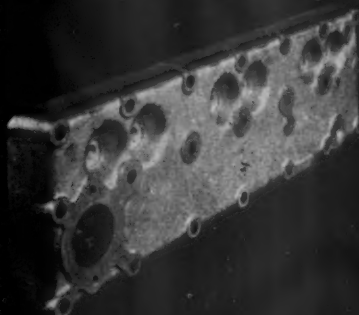
RAILS - TRACK EQUIPMENT - PIPE - PILING

**L.B. FOSTER co.**

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4  
ATLANTA 9 • HOUSTON 2 • LOS ANGELES 5

For More Information Circle No. 411  
on Inquiry Card—Page 17

## **BORES MOTOR BLOCKS 22% FASTER— AND WITH 28% LESS TOOL WEAR**



... thanks to

### **FERROCARBO®**

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they **COST YOU NO MORE**... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

**FOR FREE BOOKLET on FERROCARBO**, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 34, Niagara Falls, N.Y. 04-04

## **CARBORUNDUM®**

For More Information Circle No. 412  
on Inquiry Card—Page 17

## **Portable Lifts**

(Continued from page 89)

for handling materials at machines and other work stations, where it is uneconomical to tie up more costly industrial trucks to serve as work positioners at such areas, or to incur machine down-time waiting for primary equipment. They eliminate stooping and bending, normally associated with manual work positioning from a fixed container or stand.

A tool and die shop utilizes portable lifts to transport 6-inch diameter bar stock from storage to a metal cutting band saw. The lift doubles as a work positioner while the required length of stock is cut off. Because of their size and maneuverability, portable lifts can be operated directly adjacent to machines, for positioning small dies, stacks of sheets, sub-assemblies, and the like.

In many plants, jib cranes are located at machines to position loads and fixtures. Portable lifts, used for such jobs, can serve several machines with ease, eliminating the costly investment of jib cranes at each work station. Also, they are often used for transferring loads between bays served by overhead bridge cranes, providing probably the most economical means of performing such tasks. And where overhead cranes are not immediately available due to peak work loads, portable lifts can be quickly pressed into service to save time.

For overhead maintenance work, portable lifts provide a working platform and hold work at proper height for repair, cleaning or adjustment. There is an important safety factor in such applications, as compared with ladders—safety to the man, and to the load.

In stacking work, portable lifts: free powered trucks for the long runs where they can be best utilized. Portable lifts can pick up palletized loads from powered trucks at the entrance to storage areas for stacking. One large aircraft manufacturer does just that in the various jig rooms throughout its widespread operations.

Portable lifts can normally

(Please turn to page 328)

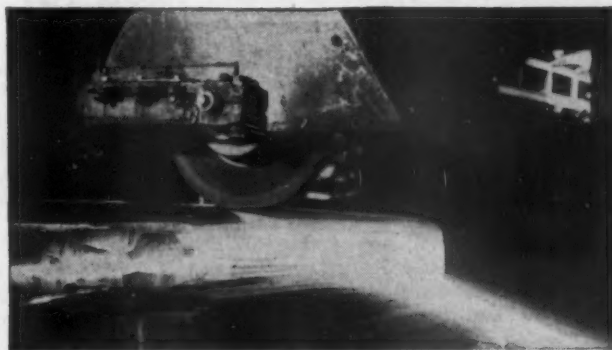
1. THE NUMBER 25877 ON THE BEARING CONE, coupled with 25821 on the cup, tells P.A.'s that this is a certain-size tapered roller bearing. However, it *doesn't* tell you anything about the quality of the bearing and the services that go with it. But the trade-mark "Timken®" stamped on the bearing *does*.



## What a bearing number doesn't tell you



3. WE WATCH OUR BEARING STEEL WITH TELEVISION EYES to prevent it from jamming up in the furnace during the important slow-cooling process. We use ultra-modern machines and methods like this—in research and production—to make Timken the No. 1 value in bearings.



2. WE'RE SO FUSSY ABOUT THE STEEL that goes into Timken bearings that we make our own. This grinding operation removes surface defects. It's one of the many quality steps that make Timken steel the finest bearing steel ever made.



4. WE PUT OUR ENGINEERS TO WORK FOR YOU—One example: this machine tests automobile rear axle bearings under abnormal load conditions. It helps car makers get better performance from their Timken bearings. Quality and service make Timken bearings your number 1 value. And their public acceptance helps you sell your Timken bearing equipped products. Always specify "Timken" when you specify a bearing number. The Timken Roller Bearing Company, Canton 6, Ohio.

# TIMKEN is number 1 for VALUE

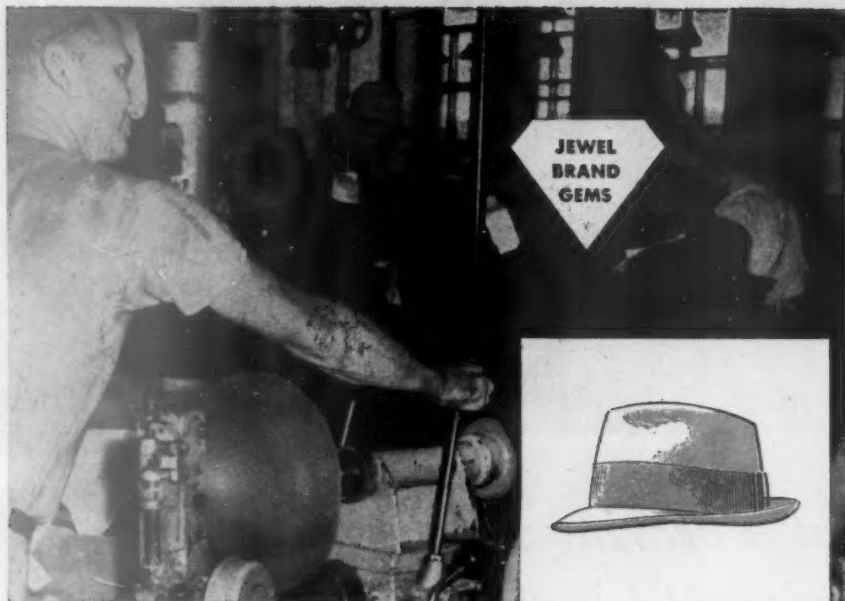
TRADE-MARK REG. U. S. PAT. OFF.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

For More Information Circle No. 413 on Inquiry Card—Page 17

FEBRUARY, 1956

327



## Maybe there's an idea for you in this STETSON finishing operation

Believe it or not, there is some roughness in hat fur. To remove it, STETSON employs abrasives . . . not just ordinary abrasive because STETSON HATS are not ordinary hats . . . STETSON concentrates on JEWEL BRAND POUNCING PAPER. There's a good reason for this. JEWEL BRAND POUNCING PAPER is razor sharp. It cuts clearly without dragging, and is both flexible and durable. For an operation that requires a very light touch, JEWEL BRAND POUNCING PAPER solves

a problem precisely.

You may have some finishing problem where the AP experience involved in this application would be helpful and profitable. AP experience covers a broad range because of the broad range of abrasives AP Manufactures. You can get the benefits of this experience without obligation. Just call an authorized ABRASIVE PRODUCTS, INC. DISTRIBUTOR or write Abrasive Products, Inc., 523 Pearl Street, South Braintree 85, Mass.



## A Full Line of Coated Abrasives

Jewel Brand Abrasives include **Jewelox**, aluminum oxide on cloth; **Jewelite**, silicon carbide on cloth and paper; **Jewel Garnet**, a natural mineral prepared by an exclusive method; **New Process**, an aluminum oxide abrasive paper, cloth and combination; **Jewel Emery Cloth**; **Jewel Flint Paper**; and **Specialties**. These products conform with the recommendation of the Division of Simplified Practice of the United States Dept. of Commerce.



# Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS - MAKERS OF JEWEL COATED ABRASIVES

For More Information Circle No. 414 on Inquiry Card—Page 17

## Portable Lifts

(Continued from page 326)

right angle stack in aisles less than 5 feet wide, and can operate in narrow bin sections where powered industrial trucks can not travel. This makes possible more efficient use of space, reducing overhead costs. In some cases, presently unusable areas can be converted into useful storage facilities, thanks to the accessibility of such handling equipment.

A midwestern pump manufacturer utilizes portable lifts on upper, weaker floors of his factory, for handling unit loads of packaged finished components weighing about 150 lbs. each.

For stock picking or order picking, the worker can elevate himself to upper stacks, shelves, or bins to reach and handle items, then use the carrier as a hand truck for horizontal transportation of the load itself. Again, this permits efficient utilization of space through vertical storage.

Thus portable lifts offer many specific benefits in a variety of applications in both large plants and small. Working in conjunction with powered industrial trucks and overhead handling equipment, they round out the complete materials handling system, providing an effective and economical means of handling on a repetitive basis over non-fixed routes.

## How Much Work?

(Continued from page 118)

cated by stress effects if the boss is a martinet or has impressed the workers too insistently as to his expectations.

In one of its offices, the General Electric Company increased the lighting for key-punch operators by seven times. Theoretically, there should have been an increase in work output. But the output remained just the same the next week, and the next—stereotyped efficiency.

After about two months in the better lighted room, output slowly began to climb. The improvement was irregular; some weeks there were slumps back to older low

(Please turn to page 330)





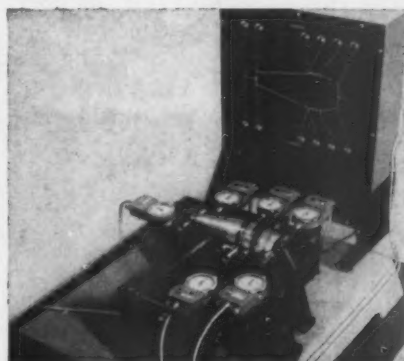
#### DIAL INDICATOR GAGE

checks O.D. runout and squareness of face of hobs quickly, accurately, and for much less cost than any other gaging system.

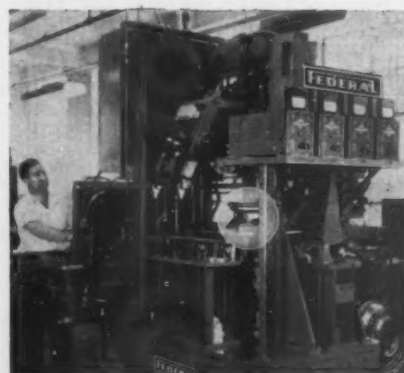


#### AIR GAGES

check I.D. and chordal height of arc-like workpieces. The Dial Indicators check squareness of faces and concentricity of two diameters. Typical illustration of how Federal combines gaging systems to suit requirements.



**MULTIPLE DIMENSION "PICTURE PANEL" GAGE** checks overall length and five outside diameters of projectiles. Shows off-tolerance parts by flashing colored tolerance lights. Electricators show how much tolerance varies (from nominal).



**ELECTRONIC AUTOMATIC SORTING GAGES** inspect tubeless tire wheels for radial and lateral runout. Gages are in-process type and are conveyor-fed.



## It's time to buy the right gage...

Too often, a gage is bought to inspect certain dimensions without consideration of other factors which may be of even greater importance than its ability to gage accurately. Buying any type or system of dimensional gage with a higher degree of accuracy than required... and at a higher price... is just poor economy. Many purchasing agents are saving their companies thousands of dollars by refusing automatic okays of requisitions for super-accurate, expensive gages until they determine they are buying the right gages.

Buying gages today involves such highly technical knowledge that no purchasing agent can be expected to have all the necessary information. It is decidedly to his interest, and his Company's, to see that the men in the plant who actually use gages have an opportunity to meet the Federal representative when he calls so they can discuss with him the best gage for the job, and the latest developments in gaging methods.

The best inspection departments we have known do not let tradition or fly-by-night practices overshadow consideration of better methods. Neither do good gage buyers blindly accept new gages without carefully investigating the different gaging methods and getting impartial recommendations.

Federal has been making gages exclusively for many years and we have today the most complete line of accuracy-proven, modern gages in the world. This specialized background of continuous and extended experience in gaging has taught us to analyze and solve gaging problems with certainty and to render sound service to our customers.

Since Federal makes all modern gaging systems, we can be impartial in our recommendations and supply you with whichever system best meets your needs. This can be of distinct advantage to you, for it isn't likely that a salesman will recommend the best system if he hasn't got that system to sell!

There is a Federal representative near you, ready to give you and the men in your shop the facts impartially.

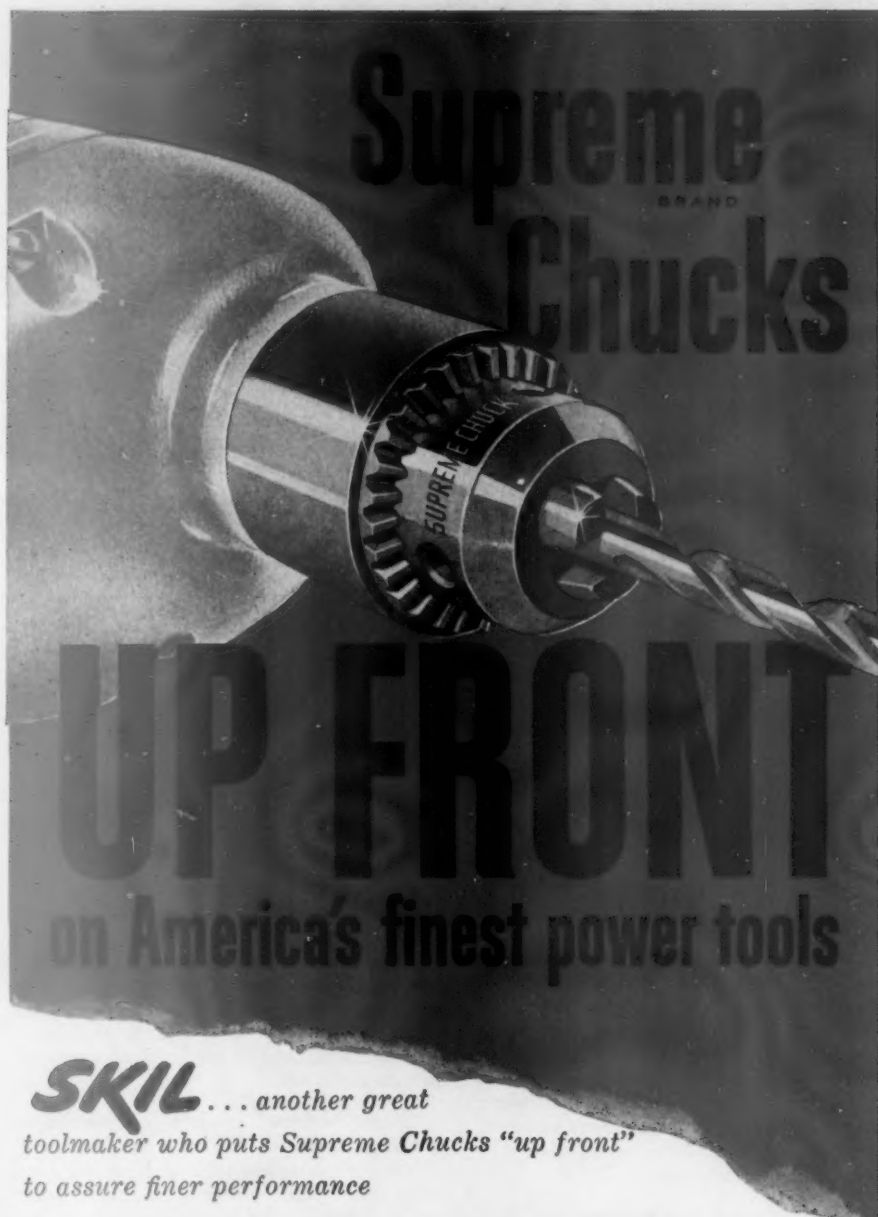
**FEDERAL PRODUCTS CORPORATION**  
6452 Eddy Street  
Providence 1, Rhode Island

**FEDERAL'S SOLUTION  
TO THE COST OF GAGING:**  
Impartial Gage Selection  
Engineering Follow-Through  
Everything in Gages

# Ask **FEDERAL** First

FOR RECOMMENDATIONS IN MODERN GAGES...

Dial Indicating, Air, Electric, or Electronic—for Inspecting, Measuring, Sorting, or Automation Gaging



**SKIL**... another great  
toolmaker who puts Supreme Chucks "up front"  
to assure finer performance

Skil Portable Tools are produced with the sincere intention of giving America's tool buyers the finest performance qualities possible. With this in mind, the management has elected to equip more and more of their output with Supreme Brand Chucks.

Skil, like other power tool makers, have found that they have a

finer product to sell when there's a Supreme Chuck up front. Tool buyers everywhere will do well to follow the leaders and specify Supreme on new tools—insist on them for all replacement use.

An industrial distributor near you can give you the full story on extra quality Supreme Brand Chucks.



SUPREME PRODUCTS, INC. • 2222 S. CALUMET AVE., CHICAGO 16, ILL.

For More Information Circle No. 416 on Inquiry Card—Page 17

## How Much Work?

(Continued from page 328)

levels. It was a year and a half before the full benefits of the improved working conditions showed up. By that time the stereotype barrier had been broken through. Output was up by 58% and errors were down 69%.

That is the way it goes after most improvements in working conditions or methods. For the first few weeks or months there seems to be no benefit. It takes several months as a rule before the old stereotyping fades away and higher ceilings are reached. Don't condemn such an improvement too soon. Give it time to take effect. Wait until the people have had a chance to break through their own old ceilings.

The dead hand of stereotyping has a special challenge to the person who has ability and ambition. If he is not getting along as he should, it may be because this iron hand of habit is holding him back. Most of us are stereotyped at one level or another. Hosts of people are stereotyped at low levels without realizing it, because they haven't tried to figure out how they are doing in comparison with a month ago, or how they might work more efficiently.

## Plastic Molding

(Continued from page 100)

design. The firm will do well to rely on the specialists in this business to construct his molds, rather than attempting to make the dies in the company tool room.

Sometimes management tries to meet this part of the problem by employing one experienced mold maker who is capable of directing the activities of others in the plant tool room. This procedure is recommended only under very special circumstances. If a concern intends to build up a large plastics department, there might be justification for establishing a molding die tool room. Such a policy would assume that plenty of time would be spent in making new molds, even though the tool room work were to be

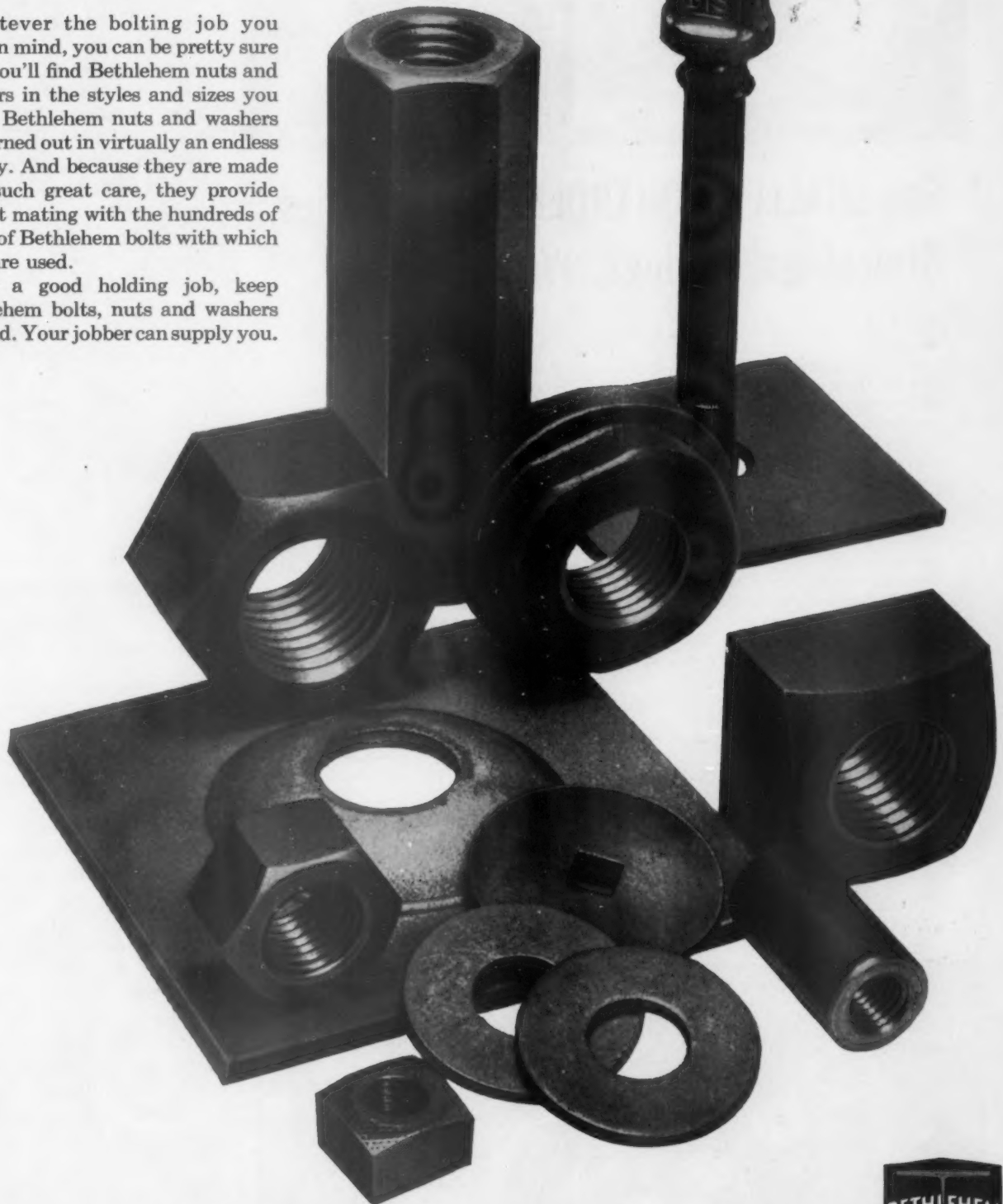
(Please turn to page 332)

# STYLES and SIZES for EVERY

# NEED

Whatever the bolting job you have in mind, you can be pretty sure that you'll find Bethlehem nuts and washers in the styles and sizes you want. Bethlehem nuts and washers are turned out in virtually an endless variety. And because they are made with such great care, they provide perfect mating with the hundreds of kinds of Bethlehem bolts with which they are used.

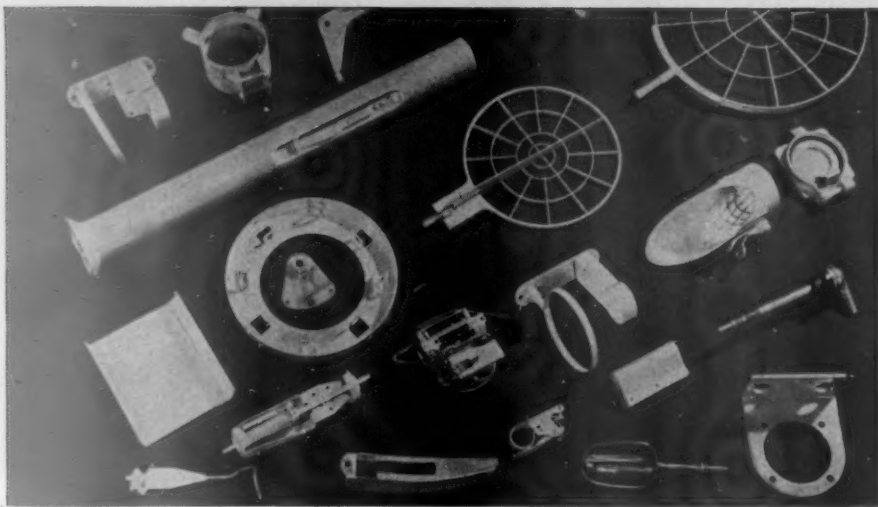
For a good holding job, keep Bethlehem bolts, nuts and washers in mind. Your jobber can supply you.



**Bethlehem Fasteners Are Good Fasteners**







## For QUALITY CONTROLLED Assemblies, Stampings, Springs, Wire Forms...

it could pay you to check with Hunter.

A good number of companies—among them a major manufacturer of electrical appliances, a machinery producer, a garden tool manufacturer—are using Hunter as a No. 1 source of supply for assemblies—some intricate, some not—and for large quantity, long run stampings, wire forms, springs.

They are using Hunter because our company offers certain specific benefits among which are:

The type of "Quality Control" and "Quality Reporting" you would expect from a pioneer in this field.

Delivery when deliveries are needed.

Reasonable prices based on rigid adherence to job specifications.

Close cooperation by our engineers.

Sound engineering and top production techniques learned through long experience.

Excellent facilities for assembly work, stamping, tool and die work, spring making, plating, and other associated activities.

If you are a purchasing agent who believes it a duty to investigate new sources of supply, we invite you to check with us.

You can start by requesting our bulletin which will be submitted at once. If you care to go a step further, request that a field engineer call.



Write for this bulletin

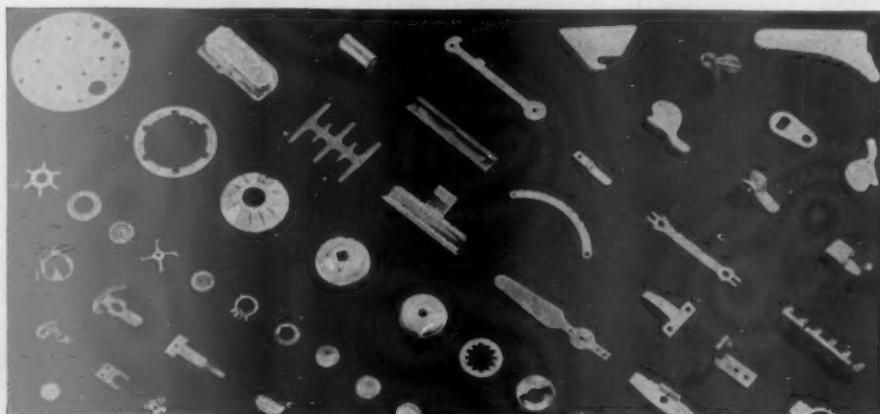


**HUNTER SPRING COMPANY**

15 Spring Street, Lansdale, Pennsylvania

(near Philadelphia)

SPRINGS • STAMPINGS • TEST APPARATUS



For More Information Circle No. 418 on Inquiry Card—Page 17

## Plastic Molding

(Continued from page 330)

under the supervision of a capable and experienced man.

The whole subject of personnel for a plastics molding department represents an important phase of the over-all venture. We have here discussed the project from the standpoint of probable initial purchases and investment. Entry into the plastics field on a departmental basis is not inexpensive from the standpoint of machinery and equipment costs. This emphasizes the corollary that procuring and providing experience to protect such an investment is just as important. Once it has been definitely decided to establish a plastics department, and even before the equipment has been selected and purchased, management should give thought to competent, experienced personnel to operate it. If this precaution is taken at the outset, a substantial amount of money may be saved in the purchase of proper equipment, and the chances of financial success will be proportionately increased.

## Cutting Correspondence Costs

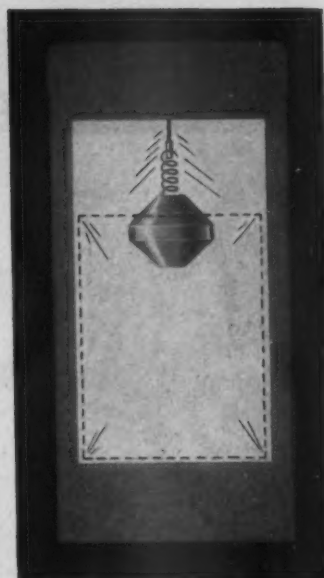
(Continued from page 122)

to individual employees can also be studied to good effect. Some individuals, it is found, are more adept at answering one type of correspondence than another. Some have a better background to handle the information involved. Since keeping costs down requires maximum output from everyone on the staff, individual talents and abilities should be exploited wherever possible.

Where discipline is lax, work production is never high. Lessening the requirements and opportunities for office "traffic" and taking the necessary steps to control other "away from desk" activities will substantially increase output and reduce correspondence cost in almost any office.

## Supply Costs

General equipment and supply costs should also be examined. (Please turn to page 334)



Releasing pedal starts automatic TAMP action, compressing towels in disposable paper bag.



Easily removed bag saves time, prevents litter, promotes wash-room economy.

## *NOW! Cleaner washrooms! Lower maintenance costs!*

### *with exclusive new* **NIBROC® TAMP\***

Here's another dramatic Nibroc first—from the makers of the first and still finest wet strength towels. It's the exclusive new Nibroc TAMP that dispenses and disposes of towels with unprecedented washroom neatness and economy.

TAMP automatically compresses waste towels into compact, easily removed bales. Each bale equals three to

five 55-gallon drums! Moreover, TAMP brings: • *Reduced towel consumption* • *Less litter and pickup* • *Resale of valuable waste bales* • *Reduced fire hazard* • *Better employee satisfaction.*

For general plant areas, TAMP comes without the dispenser to provide similar savings in disposal of wiping papers and other waste.

\*Pat. App. For

#### **GET 3-T THRIFT— towels, tamp, tissues!**

For tops in savings, install TAMP—then buy Nibroc Towels and Nibroc Softie and Softon Toilet Tissues together. Ask your Nibroc Distributor. He's listed in the Yellow Pages under Paper Towels. Or write Brown Company, Dept. NG-2, 150 Causeway St., Boston 14, Mass.



## Versatile\*



Keeping things up in the air is fine if you're a juggler, but not for office, plant or warehouse storage. You've got to know where things are, and only the versatility\* of Fort Steuben's steel shelving permits accurate storage of all types. Shelves can be arranged and rearranged to fit your storage problem of the moment. They can be open or closed, even supplied with locks if desired. Costs less than all other types of shelving too!

Call or wire collect for free catalog or engineering service relative to your storage needs. Address Dept. P-1.



For More Information Circle No. 420 on Inquiry Card—Page 17

## Cutting Correspondence Costs

(Continued from page 332)

Many typists are prone to change ribbons with as much as 25% of their useful life still available. Better use of these and all other types of office supplies can also be studied. In far too many instances, the tendency is to consider such wastes as of trifling importance—a matter of a few pennies. But in the aggregate, the pennies quickly mount into dollars.

Proper maintenance of office machines is also important. Many studies have revealed that it is far less costly in the long run to adopt a program of regular inspection and preventive maintenance than to wait until breakdowns occur and repairs become necessary.

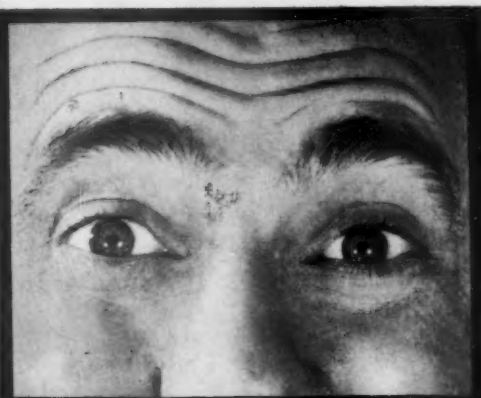
The main point to bear in mind, and the surest method of reducing the cost of correspondence in any office, large or small, is to know where the leaks are—spot them early—and remedy them promptly.



## Locking Insert Eliminates Washers, Lock Nuts, Wire

The problem of locking fasteners against loosening under vibration is claimed to be solved by a mid-grip screw lock insert, developed by Heli-Coil Corp., Danbury, Conn. Not only does the insert eliminate lock-washers, lock-nuts and locking wires, but it also provides strong wear-resistant threads in the light metals, plastics, steel and cast iron. Because the insert requires no more boss diameter or wall thickness than a conventional tapped thread, it can be easily incorporated into an otherwise frozen design. It is currently available in sizes 10-32; 1/4-28; 5/16-24 and 3/8-24.

No  
Matter how  
Hard  
You Look



**JEFFERSON**

**Petrochemicals are TOPS in quality!**

Ethylene Oxide, Glycols, Dichloride  
Ethanolamines  
Nonyl Phenol  
Morpholine

Ethylene, Propylene  
and Glycerine Carbonates  
Polyethylene Glycols

Shipped from convenient distribution points at Port Neches, Houston, Chicago, Los Angeles, and Tenafly, New Jersey—available in tank cars, tank wagons, or 55-gallon drums.

For prompt service, call your nearest Jefferson representative.

Jefferson Chemical Company, Inc.,  
Box 303, Houston 1, Texas.

Essential Chemicals from Hydrocarbon Sources

**Jefferson**  
CHEMICAL COMPANY, INC.

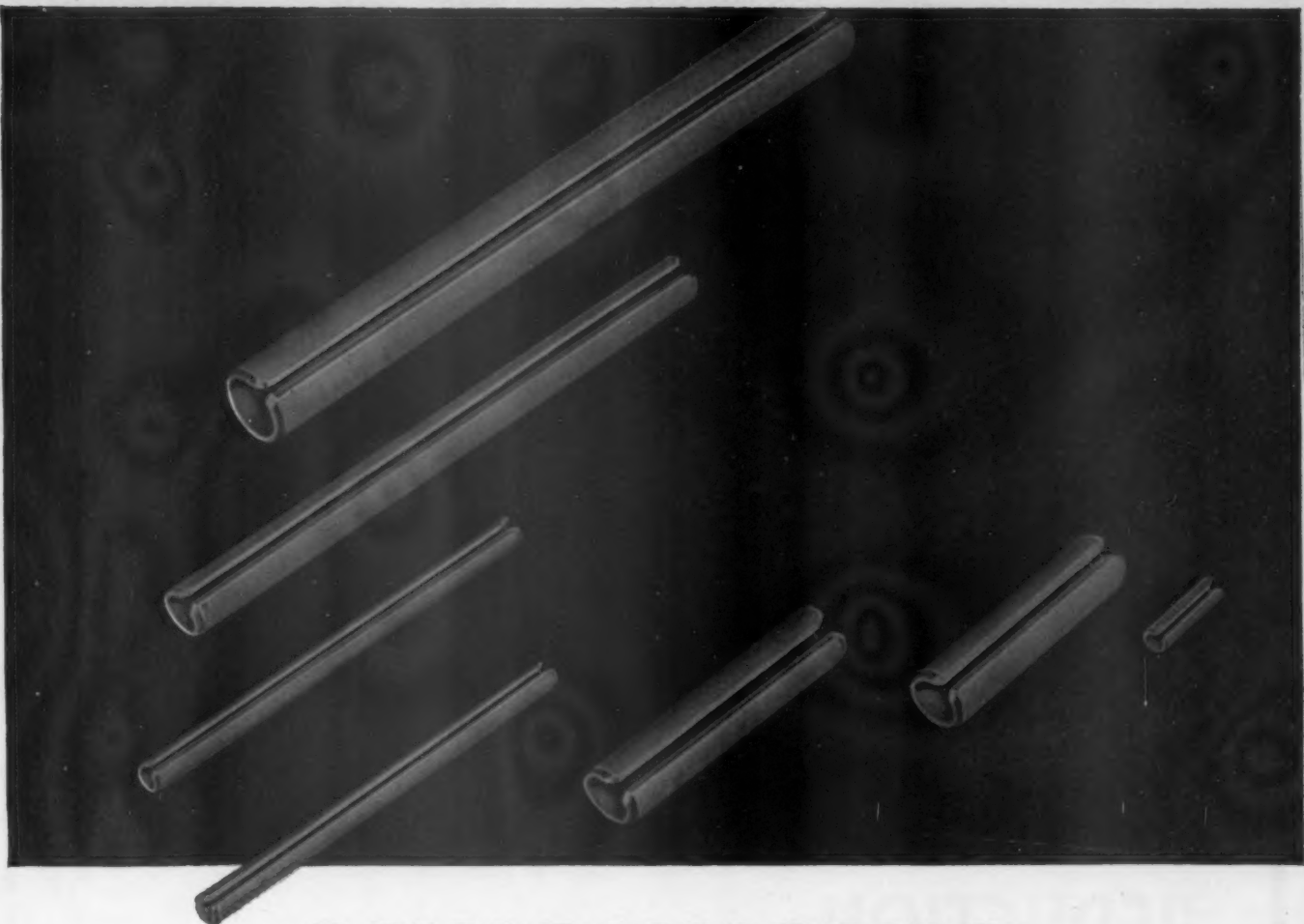


HOUSTON • NEW YORK • CHICAGO • CHARLOTTE • LOS ANGELES

For More Information Circle No. 421 on Inquiry Card—Page 17

**PURCHASING**





# ANNOUNCING...

## the Beryllium Copper ROLLPIN®

**Strong . . . highly resistant to corrosion . . . nonmagnetic . . . extremely conductive**

Now you can use Rollpin to cut assembly and maintenance costs in a whole new group of applications. A new line made of beryllium copper, one of the strongest of the copper base alloys, opens the door to a wide variety of uses where resistance to corrosive attack, good electrical properties and other unusual characteristics are required. These slotted tubular copper spring-pins can be used in assemblies that range from plumbing fixtures to electrical instruments, particularly in conjunction with other copper base alloy components.

Rollpin has already established its ability to replace taper pins, straight pins and set screws; to serve as a rivet, dowel, hinge pin, cotter pin or stop pin . . . eliminating special machining, tapping and the need for hole reaming or precision tolerances. Driven into a hole drilled to normal production standards, it locks securely in place, yet can be readily drifted out and reused whenever necessary.

Rollpin is available in beryllium copper from .062"-diameter to .250"-diameter, and in steel and stainless steel up to .500"-diameter.

**ELASTIC STOP NUT**



**CORPORATION OF AMERICA**



as a rivet

# ROLLPIN

TRADEMARK



a clevis pin



replace tapered pins



a set screw

Dept. R35-215, Elastic Stop Nut Corporation of America  
2330 Vauxhall Road, Union, New Jersey

Please send me the following free fastening information:

- ☐ Data on beryllium copper Rollpin      ☐ Here is a drawing of our product. What self-locking fastener would you suggest?

Name \_\_\_\_\_ Title \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

For More Information Circle No. 422 on Inquiry Card—Page 17

**YOU'LL  
want to  
READ  
and  
SAVE  
the  
MAY  
"COST  
REDUCTION  
EDITION"  
of  
PURCHASING  
MAGAZINE  
|  
WATCH  
FOR  
IT!**

## **SPECIAL MAY ISSUE . . .**

The entire May issue of Purchasing Magazine will be devoted to cost reduction in the purchasing department.

It will provide you with information and techniques that will enable you to cut costs . . . improve the quality of your purchases . . . and increase your company's profits.

There will be detailed instructions for cutting costs in the various areas covered by the buying function—*plus* 450 actual histories of savings in dollars and cents.

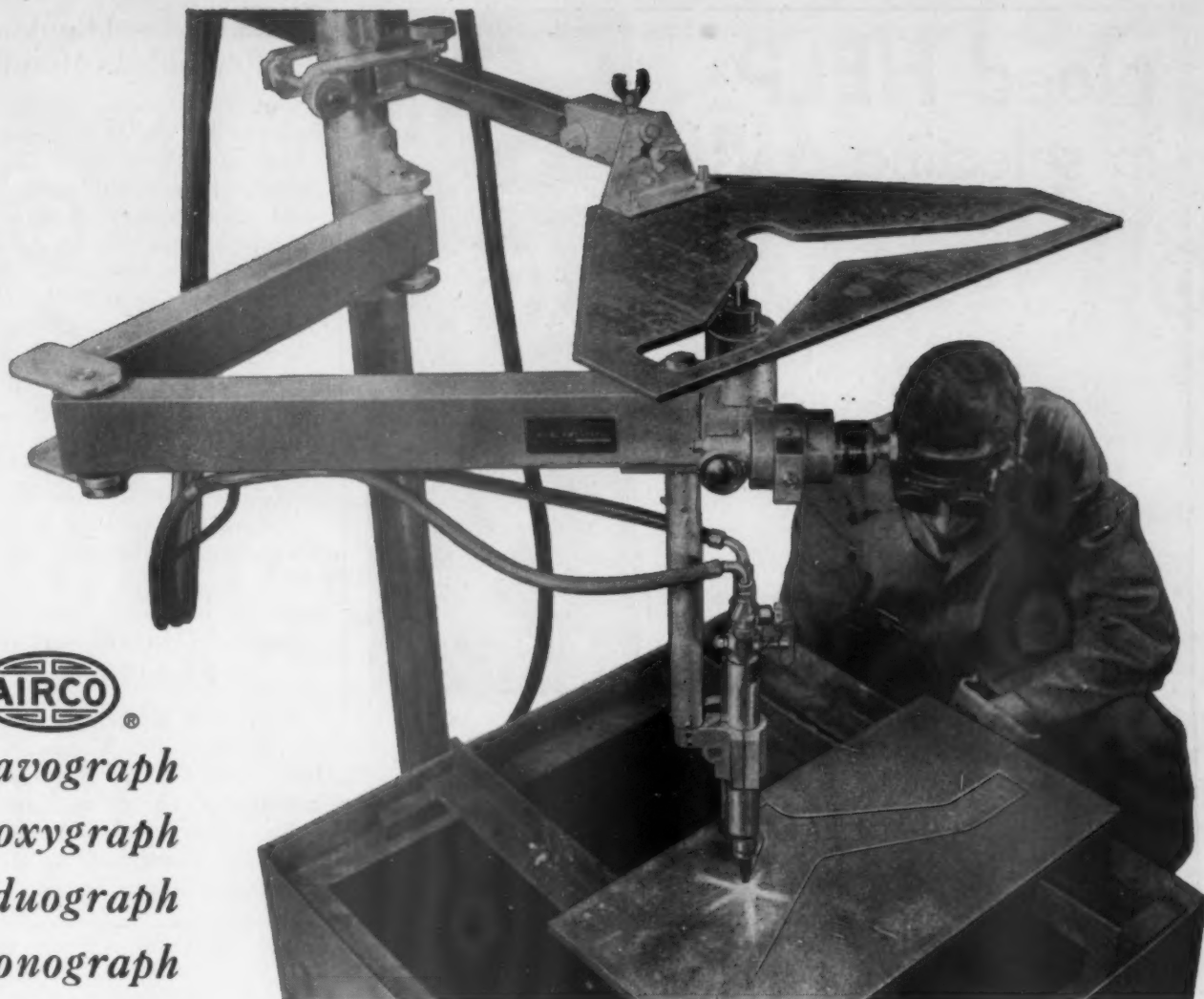
These cases will be classified in 8 convenient sections for easy reference—

- materials
- production tools and processes
- electrical equipment and supplies
- materials handling
- maintenance, repair and operating supplies
- component parts
- packaging and shipping
- office equipment and supplies

A great deal of time and effort has gone into making this May "Cost Reduction Data Book" a useful tool for you—and for all industrial purchasing agents. It has been designed to help solve your cost problems. Watch for it!

**ORDER YOUR EXTRA COPIES  
NOW! — \$1.00 per copy**

**PURCHASING MAGAZINE  
205 E. 42nd St.—New York 17, N.Y.**



*travograph  
oxygraph  
duograph  
monograph  
radiograph*

## *and now the* **NEW #42 CAMOGRAPH** *for repetitive, accurate shape cutting!*

The new Airco #42 Camograph is a low-priced, accurate, shape-cutting machine which can be used as a major production tool to turn out thousands of identical flame-cut parts — or — as an auxiliary unit to supplement the output of larger, more expensive machines. Here are a few of its many features:

- **Cuts any shape** up to a full 42" diameter circle — straight lines to 92".
- **Accommodates wide range** of tip sizes to shape-cut steel of any practicable thickness.

- **Tracer head is permanently magnetized**—operated by an adjustable speed motor.

- **Portable**—move it from location to location, easy to set up and level.

- **Unerring Accuracy.** Permanently magnetized tracer hugs steel template. Knurled roller follows most intricate shapes at constant speed — driven by adjustable-speed, governor-controlled motor through positive worm-gear drive — no couplings, pulleys or belts.

See your Airco representative for full details —  
or—write Airco direct. Request catalog ADC 853.



### **AIR REDUCTION**

60 East 42nd Street • New York 17, N. Y.

*Divisions of Air Reduction Company, Incorporated, with offices and dealers in most principal cities*  
Air Reduction Sales Company  
Air Reduction Pacific Company  
Represented internationally by  
Airco Company International  
Foreign Subsidiaries:  
Air Reduction Canada Limited  
Cuban Air Products Corporation

Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — industrial gases, welding and cutting equipment, and acetylenic chemicals • PURECO — carbon dioxide, liquid-solid ("DRY-ICE") • OHIO — medical gases and hospital equipment • NATIONAL CARBIDE — pipeline acetylene and calcium carbide • COLTON — polyvinyl acetates, alcohols, and other synthetic resins.



# Need **HELP** in selecting coils?

Coil windings can be mighty tricky. The safe course, when you have designing that seems out of routine, is to call on our experienced coil engineers. Whether you have a problem involving size, heat-rise, humidity, Underwriters' requirements, weight or shape, we may be able to save you countless hours of trial and error.

An inquiry places you under no obligation. Just tell us about your problem—or that you have one. A note or postcard will start the ball rolling. Send it today. Better yet, phone us collect at 1720, Wabash.

## **DELUXE COILS, INC.**

**Dept. P**

**Wabash, Indiana**

Plain Enamel

Formvar

Celenamel

Thermaleze

Alkanex

Silicone

Sodereze Q

Bondeze

Cement Coated

Nylon

## **Making Used Containers Reusable In Minutes**

An inexpensive product, developed by The Ideal Stencil Machine Co., Belleville, Ill., completely covers old stencilled or printed markings on containers in one application. It makes the containers fit for reuse. The tan, carton-matching color is ideal for renewing corrugated cartons, fibre containers and drums of all kinds, as well as wooden boxes and metal drums. The product dries in five minutes and is ready for stencilling. It is water-soluble and dries to a smooth, color-blending, waterproof finish. It can be sprayed or brushed on.

## **Portable Barrel Burnishes Light Pieces**

Hanson-Van Winkle-Munning Co., Church St., Matawan, N.J., has designed a portable type burnishing barrel adaptable to light work, such as polishing small parts or deburring and cutting down. It can handle 5 to 10

For More Information Circle No. 424 on Inquiry Card—Page 17



### **Drop Forgings**

Made to your blueprints in many metals, in weights from ¼ to 15 pounds, depending on design. Accurate, smooth, and flash free. Their dense fibrous structure and controlled grain flow gives tremendous strength. Machined if desired.



Exclusive New England Sales  
Agent for all products of  
Cleveland Cap Screw Co.



### **Upset Forgings**

In a great variety of metals and alloys. High strength parts accurately produced—no flash, no blowholes. Excellent machining qualities.



### **Special Fasteners**

Made to your specifications in any metal or alloy, ferrous or non-ferrous, ground or unground. Bolts to 2" diam., studs to 2½" diam. Fully dependable. Cut or precision rolled threads.

Whatever your requirements in drop forgings, upset forgings, or special fasteners send your specifications and blueprints to RITCO for estimates.

**RHODE ISLAND TOOL COMPANY**

SINCE 1834

148 WEST RIVER STREET, PROVIDENCE 1, R. I.

For More Information Circle No. 425 on Inquiry Card—Page 17

lb of work and 20 to 25 lb of balls. Entirely made of Plexiglas, the barrel is lightweight, allowing it to be easily carried from place to place. The compact barrel, 8" in diameter by 8" in length, rotates in ball bearings and is powered by a 1/8 hp, 5000 rpm, 115 v motor. Speed is controlled by a rheostat which permits variable settings up to 60 rpm when loaded. The bur-nisher has a rubber gasket cover retained by spring clamps to insure a tight fit.

### New Fastener Catalog Features Net Prices

How often have you given up in disgust after searching through stock list, price list and discount sheet, to see if a supplier had in stock the item you wanted to buy at a price you wanted to pay? Too often we'll bet. Now, this harassing experience is a thing of the past, at least in the stainless steel fastening field.

The Anti-Corrosive Metal Products Co., Inc. of Castleton-on-Hudson, New York has a new type of catalog, which combines

the function of stock list, price list and discount sheet, in one single unit.

### Large Size Stainless Plates From Stock

Fabricators of stainless steel plates, who can use the widest and longest that are rolled, will in future be able to secure them from warehouse stock. Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill., announces that it is stocking steel plates up to 105" wide in a number of thicknesses from 3/16" to 1". Stainless plates heavier than 1" are carried in widths of 80". The types available are 304, 304-L, 316, and 316-L. Use of such large stainless steel plates makes it possible to effect savings in welding time and costs.

FOR SALE: 2 used units, in excellent condition. Model 2-C.W. Metco Wet Collectors, Manufactured by Schmieg Industries, Inc. Complete with built-in 2000 C.F.M. blower, 3HP-220/3/60 Motor, and push-button starting switch. Detailed drawing available on request. Reply to Price Brothers Company  
1932 East Monument Avenue,  
Dayton 1, Ohio  
Purchasing Department.

## PURCHASING AGENT WANTED

Executive position open with prominent Southern California manufacturer for outstanding man with experience in waste materials, both domestic and foreign. Should be skilled in general purchasing and inventory controls. Will pay moving expense for man selected. Please reply stating age, education, and experience. All replies held in complete confidence. Write Box, 1469, Purchasing, 205 East 42nd St., New York.

## BUYER'S & SELLER'S MART

Contract Work

Equipment For Sale

Employment and Business Opportunities

### Positions Wanted

Purchasing Agent or Assistant, twenty-two years experience in buying raw materials, fabricated parts, operating supplies and capital equipment. Thorough knowledge purchasing department organization and procedure, quality and inventory control. Will relocate. Write box No. 1472, Purchasing, 205 East 42nd St., New York 17, N. Y.

Do you need a:

LIAISON ENGINEER,  
MATERIALS ENGINEER,  
METALLURGIST,  
VALUE ANALYST,  
MATERIALS BUYER OR  
COMBINATION OF ABOVE?

Metallurgist, B.S. degree, aged 30, single, 5 years manufacturing and engineering experience with accessories, farm equipment and jet engine manufacturers, desires to become associated with progressive manufacturer in any of above capacities. Education, experiences and interests lie with material selection and its processing, with emphasis on steel application, heat treatment, and electroplating and other surface protection.

If you are looking for someone with a broad range of interests and knowledge who is interested in designing and manufacturing quality products at low cost, write Box 1476, Purchasing, 205 East 42nd St., New York 17, N.Y.

IVY COLLEGE GRAD, 33, SEEKS GREATER OPPORTUNITY AS P.A. or ASST.—8 Yrs. Diversified Industrial Buying Experience—3 Graphic Arts, 5 Textiles. Will Relocate—Resume. Write Box 1475, Purchasing, 205 East 42nd St., New York 17, N.Y.

BUYING EXPERIENCE: Career Officer, Supply Corps, U. S. Navy involving many positions as Purchasing Officer supplemented by recent experience as purchasing officer in civilian business provides wide range of knowledge of purchasing, inventory control and surplus property disposal. Extensive experience as department head, supervisory, administrative and staff positions. Responsible for procurement of material and equipment for large industrial installations.

PERSONAL: Married: free to relocate: M.B.A. Harvard Business School. Write Box 1474, Purchasing, 205 East 42nd St., New York 17, N. Y.

### LOCOMOTIVE FOR SALE

ONE USED 45 TON FIRELESS STEAM LOCOMOTIVE IN EXCELLENT CONDITION, 105 LBS. WORKING PRESSURE. DISCONTINUED USE ONLY BECAUSE OF LOSS OF PLANT STEAM SOURCE. AVAILABLE FOR INSPECTION IN PITTSBURGH, PA. AREA. WRITE BOX 1473, PURCHASING, 205 East 42nd St., New York 17, N.Y.

ATTENTION! ARE YOU INTERESTED IN PURCHASING NEW INDUSTRIAL SURPLUS MATERIAL AT A REAL SAVINGS? SEND US YOUR NAME. WRITE BOX 1478, PURCHASING, 205 EAST 42nd ST., NEW YORK 17, N.Y.

### LP GAS INSTALLATIONS and ANHYDROUS AMMONIA PLANTS

Designed & Installed

"There's No Substitute For Experience"

PEACOCK CORPORATION

Paul E. Peacock, Jr., Pres.

Box 268, Westfield, N. J.

### POSITION AVAILABLE

Purchasing Administrator: Mid-West metals manufacturer has opening for experienced purchasing agent with administrative ability to supervise procurement activities of company in fields of vendor relations, value analysis, forward planning and purchasing department operation. Adequate financial incentive to qualified man. Will report to general manager. Send resume with photograph. Write Box 1477, Purchasing, 205 East 42nd St., New York 17, N. Y.

### WANTED ABRASIVES—

Sanding Belts, Rolls,  
Sheets, Snap Gauges, etc.  
For most cash and a quick deal  
Call or Write

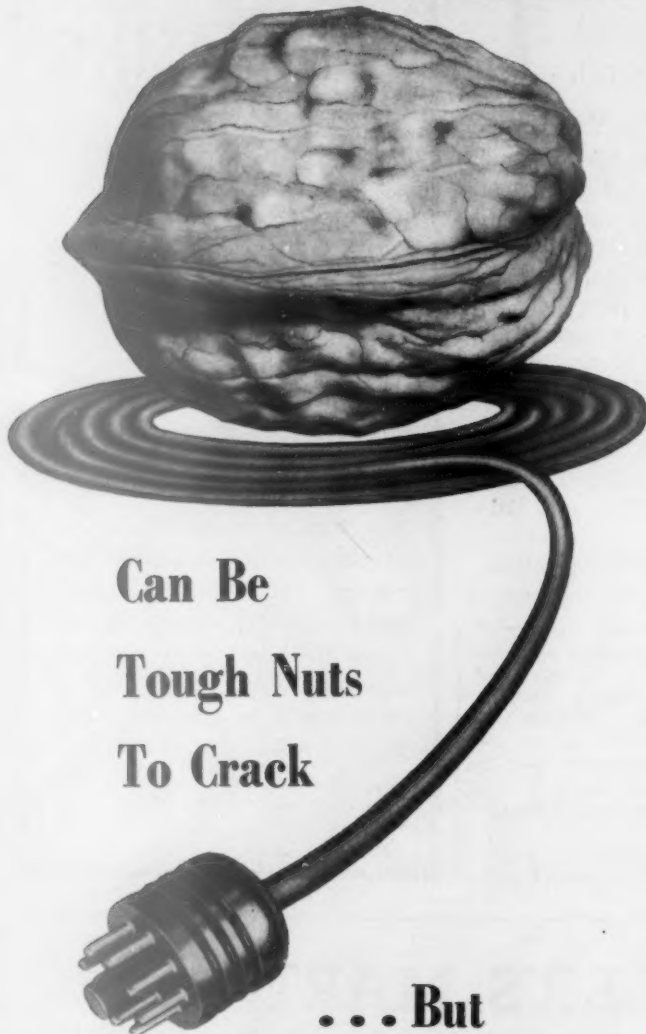
K & K SALES

525 West 76th St.

Chicago 20, Ill.

Phone: RA 3-1818

## Power Insulation Problems



Can Be  
Tough Nuts  
To Crack

... But  
Not For PHALO Customers!

Phalo has cracked the toughest insulation problems using only experience and large chunks of unused ingenuity and design and engineering ability!

It will pay you in hours of time saved and days of sunnier dispositions if you simply send for the Phalo catalog and keep in touch with the Phalo man who has a fine knack for knocking an insulation problem into a cocked hat!

This Is The Insulation  
Catalog You Want!  
*Ask For It!*



**PHALO**  
PLASTICS CORPORATION

*The Custom Cable House*

25-3 Foster St.  
WORCESTER, MASS.

Insulated Wires, Cables - Cord Set Assemblies

For More Information Circle No. 426 on Inquiry Card—Page 17  
340

**Just a minute—**

*Please don't get us wrong . . .  
we like quantity business, too*

Just the other day an engineer told us: "I'd have asked you to quote on this order if I'd only realized you handled quantity production. But, somehow, I got the impression that you specialized in custom-built transformers in small quantities only."

"Whoa!" we shouted. "Sure we specialize in custom-built transformers, but we can make 'em custom-built in whatever quantity you need."

Maybe the fact that we do handle large quantities will help you. Why not write and ask for more information—

*Just off the press! 16-page, illustrated brochure describing Caledonia's services and facilities for custom designing and manufacturing transformers.*

**CALEDONIA**

ELECTRONICS AND TRANSFORMER CORPORATION

Dept. P-2, Caledonia, N. Y.

For More Information Circle No. 427 on Inquiry Card—Page 17



CARBON STEEL  
ENGINEERS' WRENCH  
15° Angle—Double Head

**Billings Tools**

**AND MORE POWER, TOO!** A rugged wrench, heavier for more leverage, balanced to reduce fatigue, thick handle eases grip pressure.

**NON-SLIP GRIP! CRACKLE ENAMEL** finish for better gripping surface—longer lasting life.

**BRIGHT HEADS—UNIFORM OPENINGS!** Numbers and sizes clearly stamped—openings uniform, exact size measurements for safe, non-slip fit.

**LESS REPLACEMENT COST!** It's drop-forged from special steel . . . Built to last—to cut tool replacement costs!

**BILLINGS** **WRENCHES & SHOP TOOLS**  
BUY 'EM FROM YOUR DISTRIBUTOR  
Quality Tools & Forgings Since 1869

THE BILLINGS AND SPENCER CO. • HARTFORD 1, CONN.

For More Information Circle No. 428 on Inquiry Card—Page 17  
PURCHASING





BRISTOL SCREWS SHOWN are  $2\frac{1}{2}$  times actual size.

## Miniature Socket Screws Down to No. 0 for Every Application

These Tiny Socket Screws are Standard with Bristol in sizes from No. 0 and up in Bristol's Hex and Multiple-Spline Socket Set and Cap Screws—in alloy and stainless steel.

We have been specializing in small-size socket screws for many years and have been making them by the millions in sizes down to No. 0 since 1950.

Gear-like teeth in Bristol's Multiple-Spline Socket enable the wrench to actually *pull* the screw around. All wrenching force is transmitted into rotary power. As a result these tiny screws can be wrenched tighter . . . to hold tighter.

Designed to fit right in with today's automation techniques, millions of Bristol's Multiple-Spline Socket Screws are used every year by leading makers of computers, instruments, guided missiles, razors, cameras and other precision products.

Ask your industrial distributor for Bristol's Multiple-Spline Socket Screws today. He's got them in sizes down to No. 0 wire.

A.S.4R

Precision Socket Screw Manufacturers Since 1913

LARGE AND SMALL—WE MAKE THEM ALL



Standard in sizes as small as No. 0 in Alloy Steel and Stainless Steel.

THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

For More Information Circle No. 429 on Inquiry Card—Page 17  
FEBRUARY, 1956



## Pittsburgh Brushes last longer . . . work faster . . . handle easier!

High quality brushes save time and money . . . your best assurance of fast work, good final appearance is Pittsburgh Red Stripe Brushes! First, when Pittsburgh labels a brush "100% hogs' bristle" you know it's the finest bristle obtainable. Second, the Red Stripe trademark is your guarantee of brushes made to the top standards of the industry. Whether you choose 100% hogs' bristle, 100% texturized synthetic (Pittsburgh's improved Velvet-Tip synthetic), 100% Tynex Nylon or hogs' bristle—synthetic mixtures, you can depend on Red Stripe . . . because we use the best bristles available, PLUS expert craftsmen who mix the long and short quality bristles to give you more *flagged* painting surface!

For the address of the Pittsburgh supplier nearest you, write to: PITTSBURGH PLATE GLASS COMPANY, Brush Div., Dept. H-2, 3221 Frederick Ave., Baltimore 29, Md.

Maintenance, power-driven and paint brushes  
for every home and industrial use.

PITTSBURGH

**Red Stripe**  
BRUSHES



BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY



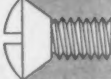
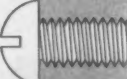
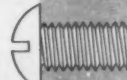
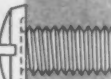
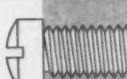
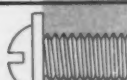
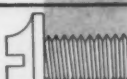
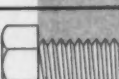
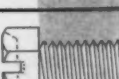
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

For More Information Circle No. 430 on Inquiry Card—Page 17

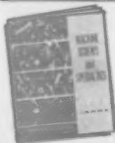
For prompt delivery, best service on "Standards", it pays to

**"Call on PROGRESSIVE"**

PROGRESSIVE makes flat, round and truss head stove bolts and nuts; machine screws and machine screw nuts.

<b>P</b>	<b>FLAT HEAD</b>	
<b>R</b>	<b>UNDERCUT FLAT HEAD</b>	
<b>O</b>	<b>OVAL HEAD</b>	
<b>G</b>	<b>ROUND HEAD</b>	
<b>R</b>	<b>TRUSS (or oven)</b>	
<b>E</b>	<b>BINDING HEAD</b>	
<b>S</b>	<b>FILLISTER HEAD</b>	
<b>S</b>	<b>WASHER HEAD</b>	
<b>I</b>	<b>COCK SCREW</b>	
<b>V</b>	<b>HEXAGON HEAD (trimmed)</b>	
<b>E</b>	<b>HEXAGON HEAD (upset)</b>	

MACHINE SCREWS AND SPECIAL FASTENERS ARE OUR BUSINESS INCLUDING SQUARE AND HEXAGON MACHINE SCREW NUTS



WRITE FOR OUR CATALOG

**THE PROGRESSIVE MANUFACTURING COMPANY**

56 NORWOOD ST., TORRINGTON, CONN.

For More Information Circle No. 431 on Inquiry Card—Page 17  
342

**Dirt can't anchor...**



...sails away with

**Cindet**  
all-purpose  
liquid detergent

**DIRT FILM** breaks up on contact with Cindet suds. The particles ride up inside the bubbles — cannot anchor — literally sail away via your suction or mop pick-up. The job is easier — the surface is cleaner. Dilute in lots of water — hard water makes no difference. Use on any kind of flooring — any surface that can stand plain water.

For free sanitary survey of your premises ask your Dolge service man

**Dependable DOLGE**  
WESTPORT, CONNECTICUT

For More Information Circle No. 432 on Inquiry Card—Page 17

**Molded Rubber**

A 20 MINUTE 16 mm  
FULL-COLOR SOUND FILM



An interesting, informative, professionally filmed color-sound picture that takes you through each operation in the production of precision-molded rubber products. Now released for general showing to industrial groups. Write for booking, stating date desired and alternate date.



Acushnet specializes in custom-engineered precision molded rubber parts made on order to customers' prints or specifications. Our broad experience in precision production can be applied to your requirements with economical results:

Send for Acushnet "Rubber Data Handbook."  
**Acushnet ACUSHNET PROCESS COMPANY**  
NEW BEDFORD, MASSACHUSETTS

... Precision Molded RUBBER, SILICONES — "APCOTITE" BONDING  
Address all communications to 770 Belleville Ave., New Bedford, Mass.

For More Information Circle No. 433 on Inquiry Card—Page 17  
PURCHASING

Quality  
**VS.**  
Cost



**-No longer an  
"O" RING problem!**

**ROTO-MOLD** provides the answer to large orders of precise quality "O" Rings in a hurry—at competitive prices.

Another **LINEAR** first, the new, exclusive **ROTO-MOLD** process brings automation to the packing industry. You get—

- ★ *Perfect uniformity.* No more rejects due to faulty ring packings!
- ★ *Mass production.* Fast delivery on any quantity prevents costly manufacturing delays in your plant.
- ★ *Freedom from contamination.* Because the **ROTO-MOLD** process is fully automatic, imperfections due to human error are eliminated.

Get all these advantages—at the cost of ordinary "O" Rings. Specify **LINEAR ROTO-MOLD**! Write for complete data on sizes and new compounds.

"PERFECTLY ENGINEERED PACKINGS"

**LINEAR**

LINEAR, Inc., STATE ROAD & LEVICK ST., PHILADELPHIA 35, PA.

For More Information Circle No. 434 on Inquiry Card—Page 17  
FEBRUARY, 1956

You see  
**FREEWAY  
WASHERS**  
everywhere...



**because they're  
made better and cost less!**

Regardless of the metal you specify . . . you'll find Freeway Washers are made better, cost less! They're flat, burr-free, concentric . . . to cut assembly time in your own plant. And they're priced **LOW** . . . because patented dies enable us to pass definite production savings on to you. Quotations gladly submitted.



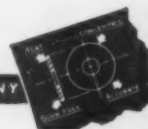
Freeway semi-precision ball bearings, for shafts to  $\frac{5}{8}$ ", have case hardened races to withstand heavy radial loads. An ideal, inexpensive answer to your low RPM problems. Write today.



Freeway-formed stampings are blanked, drawn and trimmed in **ONE** operation. This exclusive processing method insures you better small parts . . . at minimum cost. The coupon will bring you additional facts.



WASHER & STAMPING COMPANY



P. O. Box 1756, Cleveland 5, Ohio

Gentlemen: Please send us more facts about . . . .  
( ) Washers, ( ) Bearings, ( ) Stampings.

Company, .....

Street, .....

City, ..... State, .....

Signature, ..... F

For More Information Circle No. 435 on Inquiry Card—Page 17  
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# letters

## BAD LAW?

I have read with interest your recent article entitled "Some Recent Court Decisions Affecting Purchasers." (By Leo T. Parker, December 1955 issue, p. 122) I wish to take this opportunity to disagree with the decisions on principle. Further, I deny these decisions would hold water on appeal.

The author undoubtedly is aware that there are three distinct types of authority as between a principal, agent, and third parties. The first two—actual and implied authority—rest on some manifestation of authority as between an agent and the third party. Apparent authority, on the other hand, is different in principle. It rests upon the manifestation of authority made to a third party, not from the agent but from the principal. An example is the situation where the actual owner stands by silently while some unauthorized party offers for sale goods, to an innocent third party. Clearly in this situation the courts would estop the true owner from denying the authority of the fraudulent agent to act in his behalf.

The article cites the decision (*Regal v. Begum*, 111 Atl. 2d, 613) as based on this expression of apparent authority to the delivery man. It seems obvious on the face that no representative of the principal was present on the scene when the delivery occurred. The only other basis for justifying such a holding is to find some expression in the delivery order to the effect that acceptance by anyone at the scene is authorized. Clearly this nowhere appears. Certainly if I should ask you to deliver a shipment of goods to me, you would infer that I mean to me or an authorized representative, and that it would behoove you to ascertain if the party representing to be my agent had any indicia of authority to act in my behalf. It is imposing no unreasonable burden to require a firm to exercise ordinary caution in the delivery of goods. The delivery man was unconscionable careless in this situation. At least the principle of estoppel based on apparent authority is unjustifiably applied in this case.

I can only reconcile this decision by viewing the court's application of facts to law as erroneous. It apparently resulted from a misinterpretation of the term, apparent authority. If you view apparent authority as authority manifested in an individual by the actions of the individual to an innocent third party, i.e., "He apparently was the man I was supposed to deliver it to", then you cannot help but come

to the conclusion that the court did. I submit, sir, that this is not the correct principle, and any decision on this basis is bad law.

H. L. Dryer, 2/Lt. USAF  
Hq. Tech. Trn. Air Force  
Gulfport, Miss.

● **PURCHASING** does not undertake to argue or defend either the law or the decision in the case under discussion, but to report factually the testimony and the ruling of the court under these circumstances. As evidenced by the crowded calendars of the Courts of Appeals, our correspondent is not alone in taking issue with the soundness and equity of some court decisions. Nevertheless, it is the court which fixes the liability. Our purpose in presenting these cases is to show how applicable law is currently being interpreted by the higher courts, thereby pointing out some of the legal pitfalls which may entrap the innocent but uninformed purchaser or seller and helping him to avoid litigation.—Ed.

## ARTICLES COMMENDED

Your magazine **PURCHASING** has been of great assistance in providing background material for the Army Procurement Course, which is conducted by the Quartermaster School here at Fort Lee.

Many of the articles in your magazine are extremely well illustrated. These illustrations, if brought to the attention of students through the medium of Vu-Graph slides and panel charts, would be of material assistance in improving instruction in certain areas of Procurement. We have particular reference to those illustrations that appear in the articles of the nature of those written by your Mr. Leo T. Parker and Mr. A. W. Gray.

It is requested that the Quartermaster School be granted permission to reproduce these illustrations and employ them as training aids in the conduct of instruction. If it is possible for such permission to be granted we shall be grateful.

It may be of interest to your firm to know that we employ the textbook "Pur-

chasing" written by your Mr. Stuart F. Heinritz, as collateral reading for the students in the Army Procurement Course.

C. B. Henderson, Col. QMC  
Commandant, QM School  
QM Training Command  
Fort Lee, Virginia

## SELLING THE P. A.

In your October 1955 issue there was an informative article by Mr. John G. Mack entitled, "Tell Your Salesmen How to Sell the P. A." I would like to quote excerpts from this article in our *Verfax Dealer Bulletin*, and would be pleased to receive your permission.

P. H. Reed, Adv. Dept.  
Eastman Kodak Company  
Rochester, N. Y.

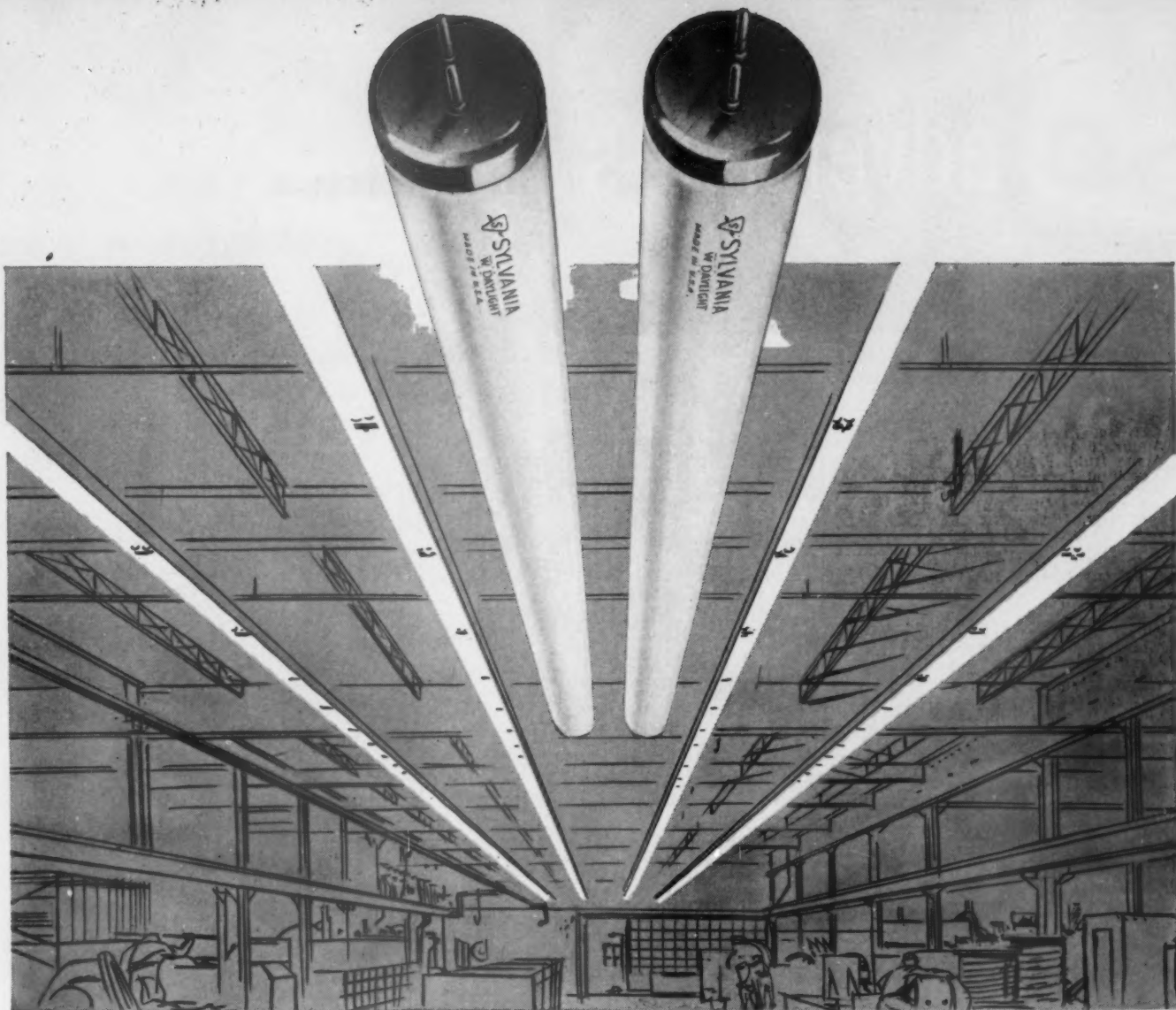
● Permission granted. Mr. Mack's excellent article has aroused such widespread interest that more than 11,000 reprints have already been distributed in response to specific requests, many of these being from sales managers who are literally following the advice of the article title. A second reprint edition is now in preparation, and copies will be available to readers as long as the supply lasts.—Ed.

## HOW TO WRITE A REPORT

There is an article in the November 1955 issue of **PURCHASING** entitled "Write Your Report the Way Management Wants It" by John F. Gustafson. I would like to use this for my classes in Purchasing. May I have permission to reproduce it for class use?

We are using your text this year, and assign various cases at the end of the text to be written up at home. The method presented in this article conforms so closely to the way we would like the students to write their reports that it will effectively demonstrate to them what we have been trying to tell them all along.

Clinton Spivey  
College of Comm. & Bus. Adm.  
University of Illinois  
Urbana, Ill.



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Matched Thermoid Multi-V belts installed on 20 h.p. motor driven tanning drums in the Gellich Tanning Company, Taunton, Mass.

These 6 x 8 ft. tanning drums posed a tough drive problem. Wooden sheaves, small angle of driver contact and constant exposure to tanning agents resulted in severe service conditions. Wear and tear on V-belts was terrific . . . replacement frequent . . . until matched sets of Thermoid Multi-V belts were installed.

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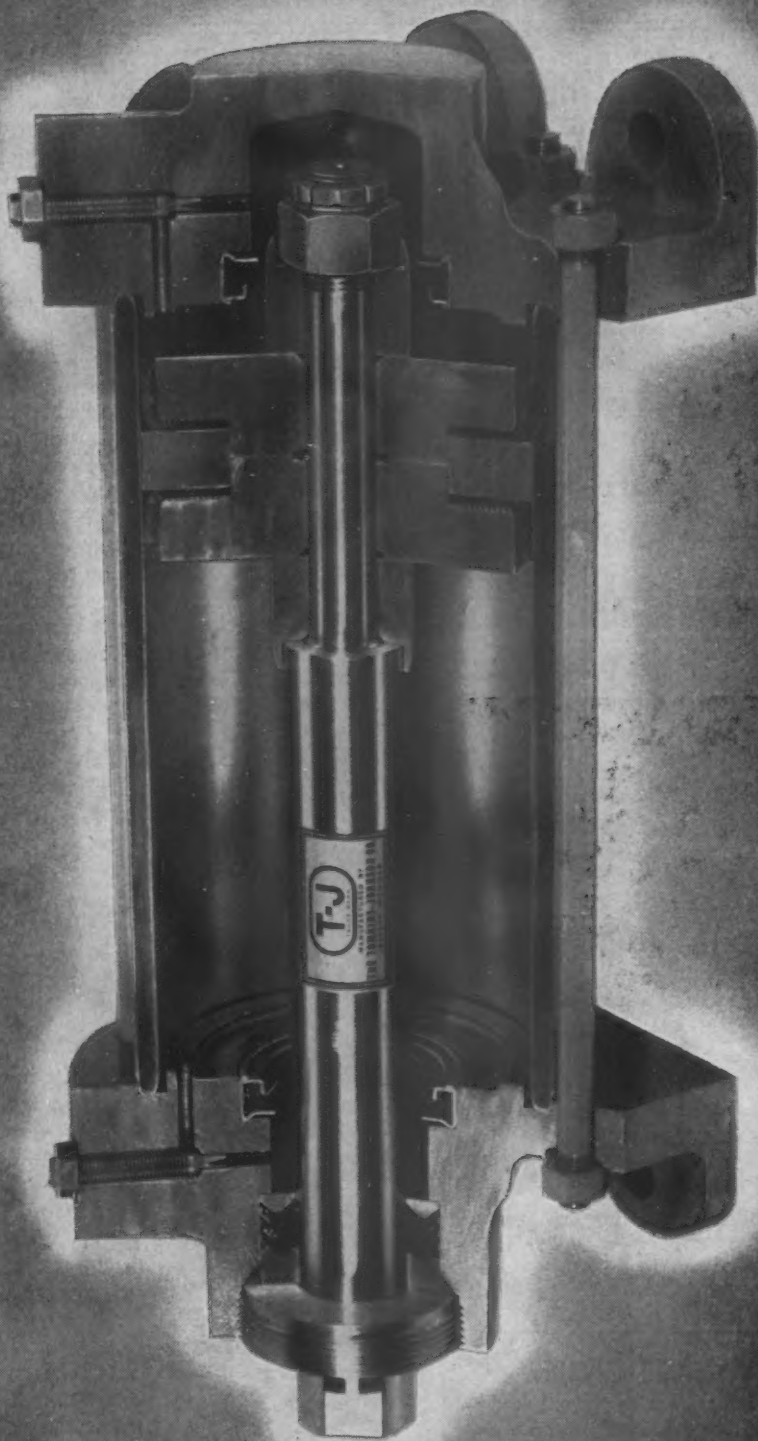
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FLEXLOCs eliminate complicated, time-consuming methods of locking threaded fasteners. They offer simpler, faster application and safer, more dependable locking than plain nuts and lockwashers, castellated nuts and cotter pins, or nuts and jam nuts. And they won't work loose.

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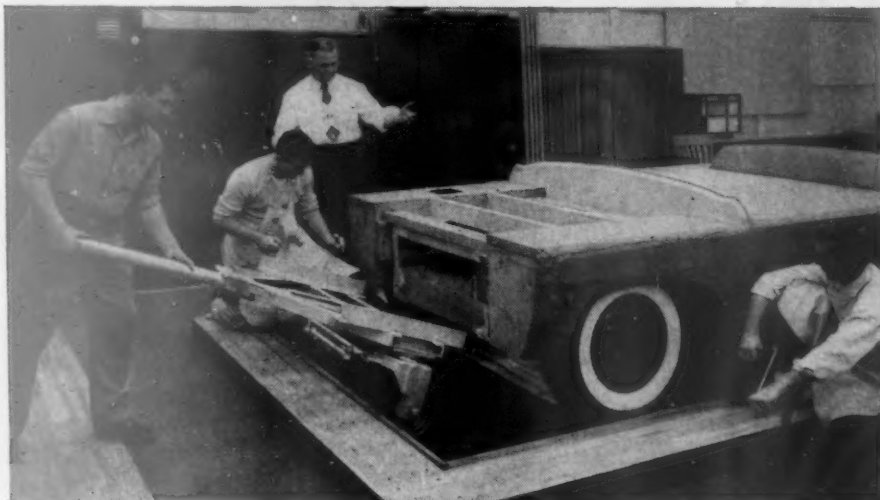
JENKINTOWN PENNSYLVANIA



# MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

## 195X clay model Dodge rides on Floating-Hubs



Here's where Dodge brass get their first look at their future entries in the auto sales derby. Foundation for full-scale clay model (above) is wheeled into the Dodge styling studios on special dolly equipped with shock-absorbing Bassick Floating-Hub Casters.

### Reason for Floating-Hubs

Job of handling these five-ton clay models easily yet carefully goes to dual-wheel Bassick Floating-Hubs for good reason. Their built-in snubbing action—with spring-controlled wheels offset from axles—absorbs shocks and vibration which could damage the models.



### Plaster cast can't stop him!

Newest (and happiest) use for Bassick casters we've come across lately is this mobile cart used by 4-year-old Glen Breither.

Pinned in a chest-to-knee plaster cast by a rare hip ailment that takes years to cure, this Bridgeport boy goes places with a smile on the caster-sled his father invented. Bridgeport's Crippled Children's Workshop is now building the same kind of vehicle for other children.

## State occasion for casters



Cast iron gate of the Old State Capitol in Baton Rouge, La., rolls open on as ancient a caster (not Bassick, by the way) as you're likely to find in this country.

Photo comes from industrial distributor Dixie Mill Supply Company. Your industrial distributor can check you out on new production methods, latest product improvements, new ways Bassick casters can help you move materials quickly and efficiently.

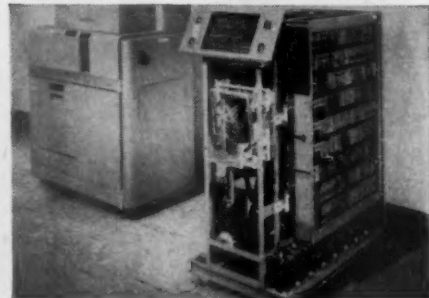
### Caster load capacity

Type of tread, motive power (hand or machine), floor conditions, distance and speed of travel all affect the load a caster will carry satisfactorily.

Floor conditions, for example, are vitally important. On smooth concrete floors, loads roll twice as easily as on rough or littered floors.

Load capacities given in Bassick catalogs are based on average operating conditions. They're sound, conservative estimates of what the caster will carry through long years of service.

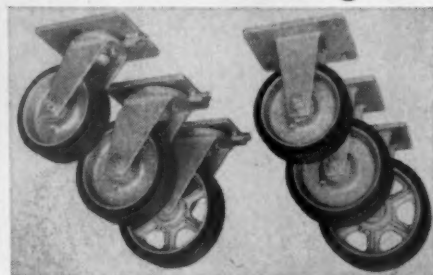
## New "brain" fast on feet



IBM's experimental all-transistor calculator features a computing unit that takes half the space—requires only 5% of the power—of a comparable vacuum tube unit.

In keeping with this more efficient headwork is the new electronic brain's footwork. Those are Bassick casters on both the high-speed punching and transistorized calculating units. Couldn't have been a better choice if the brain had picked its own casters.

## Casters cut manufacturing costs



Analysts of manufacturing costs have come up with two facts that can save you money! *First:* materials-handling generally runs about 30% of total manufacturing costs. *Second:* materials-handling is the one cost item easiest to reduce.

Bassick casters—like the precision MilSpec casters above—help you cut into the reducible 30%. Casters on equipment provide flexibility of economical movement—in any direction—immediately. They save wear on floors and dollies.



THE BASSICK COMPANY  
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MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

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PAPER TOWELS!**



If you want a paper towel that takes the drip out of a dunking, rely on Fort Howard Paper Towels—because Fort Howard's Stabilized Absorbency keeps paper towels fresh and fully absorbent regardless of towel age.

That's why you can buy Fort Howard Towels in economical quantities and know the last case will be just as absorbent as the first. And remember, only Fort Howard offers the 18 grades and folds that assure low-cost user satisfaction for *every* type of washroom.

Call your Fort Howard distributor salesman today . . .  
he has the towel to fit *your* needs!



**FORT HOWARD PAPER COMPANY, GREEN BAY, WISCONSIN**

*For 37 Years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins*

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## JENKINS Fig.106-A

The FIRST  
Renewable Composition Disc  
BRONZE GLOBE VALVE  
150 lbs. Steam 300 lbs. O.W.G.  
 $\frac{1}{8}$  in. to 3 in.

### Making a Work Horse a Champion

Take a Fig. 106-A apart. It's easy to see the reason why it's the "champion" of disc-equipped Bronze Globes. Every part, from heatproof handwheel to pipe ends, reflects the design and construction skill of generations of Jenkins Valve specialists.

Jenkins Bros. introduced the first renewable composition disc Globe... is still the only manufacturer of both valves and discs.

Fig. 106-A not only looks better — it proves out better in performance. In any comparison, its long-life, low-up-keep record has always set the standard. That is the true measure of valve cost — and it is the reason why industry's shrewdest buyers will settle for nothing less than Fig. 106-A quality.

The Fig. 106-A "family", with interchangeable parts, provides Globe, Angle, and Check patterns to meet 90% of average valve needs.

Ask your Jenkins Distributor for full information, or write: Jenkins Bros., 100 Park Ave., New York 17.



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